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HAZARDOUS WASTE MATTERS

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BEFORE THE

SUBCOMMITTEE ON
OVERSIGHT AND INVESTIGATIONS
OF THE
COMMITTEE ON
INTERSTATE AND FOREIGN COMMERCE
HOUSE OF REPRESENTATIVES
NINETY-SIXTH CONGRESS
SECOND SESSION

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HAZARDOUS WASTE MATTERS

WEDNESDAY, JULY 2, 1980

House of Representatives,
Subcommittee on Oversight and Investigations,
Committee on Interstate and Foreign Commerce,
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:30 a.m., in room 2322, Rayburn House Office Building, Hon. Albert Gore, Jr., presiding (Hon. Bob Eckhardt, chairman).

Mr. Gore. The subcommittee will come to order.

Today, the subcommittee is conducting another hearing on problems involved in the management and disposal of hazardous wastes.

The attempt to close this remaining loophole in environmental law, to assure the safe disposal of hazardous wastes, has proven to be a difficult undertaking.

Congress gave the Environmental Protection Agency—EPA—a mandate 4 years ago to establish a cradle-to-grave regulatory scheme for hazardous waste management.

The EPA has failed to move quickly and meet its obligations under the Resource Conservation and Recovery Act—RCRA. Consequently, the promulgation of the hazardous waste regulations has been delayed a number of times. These regulations were finally issued on May 19, 1980.

This morning the subcommittee will review EPA's attempt to insure that hazardous waste will be disposed of in a manner that protects public health and the environment. A brief examination of the regulations reveals that they are incomplete. The universe of hazardous waste captured by the system is small.

In addition, EPA's mandate to insure that even this limited set of dangerous wastes is disposed of safely will not be achieved under the current requirements.

Nonetheless, the regulations are a landmark step in the struggle to assure the American people that future generations will be protected from the health hazards posed by toxic wastes being generated and disposed of today.

Protection of the American people and our environment from the improper handling of hazardous waste cannot be assured simply by regulating the movement and disposal of hazardous waste. Unfortunately, we will continue to face a series of highly perilous situations as a result of decades of reckless disposal of hazardous waste.

We must not only look backward to remedy past irresponsible dumping actions, but we must also look forward to insure that the Nation will have the ability—sites and technology—to properly dispose of these wastes in the years ahead.

The General Accounting Office and the EPA Enforcement Office will appear before the subcommittee to help us focus on these issues.

Although I am frustrated by the pace of our efforts to resolve this monumental problem, I am heartened by recent activities indicating that there is a general consensus to reach the solutions which this subcommittee has helped devise and will continue to support.

Before I call on the first witness I ask my colleague, Mr. Lent, whether he has any statement.

Mr. Lent. Mr. Chairman, many times in the past I have denounced the EPA for failing to promulgate the RCRA regulations in a timely fashion. Certainly it has been well over a year since my exhortations to EPA to act quickly began.

So I am pleased that today at last we will hear from EPA about some real progress which has been made with respect to the RCRA regulations. They are not yet complete, but a substantial portion has been published in final form, which means we now have most of the essential framework in place for regulating the disposal of hazardous wastes.

However, with these strict new regulations will come different kinds of problems. Foremost among those problems will be the availability of siting. The new regulatory framework sets strict controls over waste dumping. Many who have handled hazardous waste in a careless fashion in the past will be forced to comply with the new regulations if they are to stay in business and avoid stiff civil and criminal penalties. Undoubtedly, many present dumpsite owners will close because of the expense of compliance with the new regulations.

A shortage of legal dump sites coupled with current public opposition to creation of new sites could cause a fresh wave of illegal dumping. That is the last thing we need in light of the tremendous job of cleaning up after past illegal dumping still ahead of us. I hope that siting and the closely related issue of waste disposal methods are subjects to which EPA and GAO are paying special attention and that we will hear from them today about their efforts in these areas.

Mr. Gore. I would like to express my thanks on the public record for the tremendous work that GAO has done in assisting this subcommittee not just in this hearing but for quite some time.

I believe it has contributed substantially to the public interest.

Mr. Eschwege, you have a prepared statement and please proceed to present it.

TESTIMONY OF HENRY ESCHWEGE, DIRECTOR, COMMUNITY AND ECONOMIC DEVELOPMENT DIVISION, GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY DANIEL WHITE, TEAM DIRECTOR AND FRANK POLKOWSKI, TEAM LEADER

Mr. Eschwege. Thank you, Mr. Chairman, I appreciate your kind remarks and I would like to give assurance to you and the members of the subcommittee that we will continue to work with you in this very important area.

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We welcome the invitation to be here today to discuss our ongoing review of Environmental Protection Agency programs for the disposal and cleanup of hazardous waste.

A second review dealing with the testing necessary to establish liability for hazards at disposal sites is currently underway and we expect to brief you on this review in September 1980.

We will discuss hazardous waste disposal by land injection into deep wells, and high-temperature burning. Although our discussion today is directed to these three methods, other alternatives short of disposal are available to handle the hazardous waste problem.

We will also discuss the concept of regionalization as a way to establish disposal facilities, the need for additional research and development efforts, the status of cleanup of closed and abandoned sites and, finally, we will touch on the hazardous waste regulations released by EPA last May.

Because our review is still underway, top EPA management has not yet been given an opportunity to comment on the results of our work.

Each of the available methods of disposal has merit. They are all needed to cope with the volume and types of hazardous substances requiring disposal. However, none of the methods is 100 percent safe. Each requires effective control and enforcement procedures. Substantially more analysis is also needed as to their application on an individual site basis.

Land disposal is a method of placing waste substances in or on the land, for purposes of getting rid of them or long-term storage. It is the most commonly used method. For certain States, such as Maryland and Pennsylvania, it is the predominant method in use.

EPA has estimated that nationally, there are about 94,000 landfills and 173,000 surface impoundments—pits, ponds, and lagoons—used for the disposal of wastes.

At the three EPA regional offices and six States we visited, however, only limited data on the extent that land disposal was being used for various hazardous substances, and the locations of disposal sites, had been developed. To date, detailed estimates of the total number of closed and abandoned sites had also not been made.

For the immediate future, land disposal will keep its appeal largely because it is the least expensive method of disposal. Yet, with time we will run out of land on which to develop sites. Depending on location and the substances disposed of, land disposal sites can eventually leach and contaminate groundwater. Its elimination as a disposal method is not practical, however, since land disposal will be required to dispose of solids that otherwise cannot be disposed of, as in the case of residues from incineration and solids that cannot be injected into deep wells.

Where groundwater is used or planned for use as a drinking water source, the land disposal of hazardous substances should be very closely controlled and where possible substantially reduced. Until a greater capacity for other disposal methods is developed for the country, land disposal will remain predominant.

After more specific controls over land disposal operations are put in place by EPA, resulting in increased costs, its use should decline.

One other method of land disposal used is land treatment or landfarming. It involves the placement of substances on the land and periodically plowing them under until they naturally degrade.

It has only limited application because it requires large land areas, and is limited to use in areas where temperatures are relatively mild, and do not get too low for extended periods.

It has general application to the less hazardous, biologically degradable substances. One of its current uses is in the disposal of oil sludge residues.

Deep well disposal is the subsurface injection of liquid wastes into permeable rock or other geologic formations below potable groundwater supplies or other natural resources at depths ranging from less than 1,000 to over 8,000 feet.

Such underground areas receiving wastes should be isolated both from above and below by formations that are impermeable, in order that the wastes injected are permanently confined.

A substantial drilling technology has been developed and is available for application to deep well disposal. It was first put into use in Texas in the late 1930's. Deep well disposal is limited to fluid wastes and has been used effectively in Texas and Louisiana where through December 1978, over 73 billion gallons of wastes have been disposed of in deep wells.

There is little evidence of any environmental problem resulting from such disposal. In a few instances there was some groundwater contamination, ground tremors, and blowouts.

The problem cases were explained as examples where proper technology and safety equipment were not used, including the use of incorrect drilling procedures and waste injection rates.

Groundwater contamination resulted when well tubing used was not compatible with the substances that were injected, or when there was improper packing of the well in preparation for its use.

Wastes can be reclaimed or returned to the surface. Although generally they would be pumped, depending on the substance, a substantial amount of the waste volume injected could be reclaimed by natural pressures without pumping. Once a well has been closed, it can be made permanently secure by proper plugging with concrete.

The injection of hazardous wastes into deep wells has application in only geologically selective areas where conditions below the surface are such that the wastes injected cannot migrate so as to pollute surface or groundwater and reclaimable minerals.

It requires a strong commitment by government and industry to establish strict controls over the drilling technology used, monitor the well in the drilling and operating phases, and limit the types of substances that can be injected.

Substantial geological information is needed so that only areas where wastes can be securely held are identified for site development.

In addition to the Texas-Louisiana area, other areas possibly suitable for deep well hazardous waste disposal include the Salina Basin area in Kansas; the Williston Basin in North Dakota, and small basins along the Atlantic coastal plain.

The burning of hazardous wastes in incinerators, at temperatures generally in excess of 1,000° C, with a 2-second retention period in the incinerator—high temperature burning—may be another solution to the hazardous waste disposal problem.

The process can permanently reduce large volumes of hazardous substances to nontoxic gaseous emissions and small amounts of ash and other residues.

Industry spokesmen believe it is best applied in the destruction of organic substances in conjunction with other disposal methods, and should be part of a combined disposal system which may include the land disposal of wastes.

Examples where high-temperture incinerators have been applied include ocean incineration and the burning of hazardous wastes in fossil fuel electric power generating plants.

A substantial drawback with high temperture incineration is that it is much more expensive than deep well injection or landfill. Where the waste stream to which the process is applied includes substances having low combustibility characteristics and there is a need to use fossil fuel to effectively burn the wastes, its operation may also be energy intensive. Incinerators that are not operated properly may cause air pollution problems.

Finally, there is the problem of disposal of incinerator ash and scrubber wastes. Though the waste volumes are substantially reduced by burning, the remainders of the burning process may be significantly more concentrated and more toxic. In themselves these residues may pose a substantial disposal and potential health problem.

Before high-temperature burning can provide any real national impact on the disposal problem, facilities need to be built to handle a much greater volume. Overall, the process has had only limited application. Its largest drawback would seem to be its high cost.

Disposal facilities providing services on a regional or areawide basis as an alternative to individual company onsite facilities—whether intrastate or interstate—offer economic and environmental advantages in the development of hazardous waste facilities.

Such facilities are being planned by the New England Regional Commission and the Delaware River Basin Commission. Because of the greater geographic area that can be considered in locating facilities, they can be established in geologically better suited locations, away from concentrations of population.

In addition, the number of disposal sites may be reduced. There is some evidence that public opposition to the siting of facilities can be positively affected by the broader base of participation in the site selection process.

The establishment of facilities on a regional basis could also improve the facility planning process by bringing together more people with a greater expertise level.

For land disposal, deep well injection, and high temperature burning, we found that basic research has been essentially done. Additional applied research will continue to be necessary for the long term, as is the case in land disposal, and the burning of certain very hazardous substances.

Until recently EPA waste disposal research and development activities emphasized nonhazardous waste disposal problems. Research projects often concentrated on municipal landfill design, operating problems, and resource recovery from solid wastes.

In 1979, EPA revised its research strategy to emphasize the following six categories: One, hazardous waste identification, two, uncontrolled waste site problems, three, hazardous waste technology, four, hazardous waste risk assessment, five, energy and mineral wastes and, six, nonhazardous wastes.

For fiscal year 1981, EPA has requested $26.4 million for hazardous waste research funds. This amount represents a $21.1 and $15.4 million increase over fiscal years 1979 and 1980 funding levels respectively. Over one-half of the requested funds will be applied to the further development of disposal technologies, including $8.2 million to develop refinements in incineration techniques.

The remaining research funds are to be applied to related hazardous waste problems such as toxicity and health effects studies.

To date, the national problem of what to do about closed and abandoned hazardous waste sites has not been fully confronted by the Federal, State, and local governments or by industry.

EPA continues to consolidate from various sources existing information on closed and abandoned sites, yet it has not been able to complete the type of national inventory and site assessment program that has been recommended by this subcommittee.

We testified before this subcommittee a year ago that there was no accurate and complete information on the total number of closed and abandoned sites, the extent of environmental danger that these sites pose, and the total cost of cleanup. Although EPA has started to expand its efforts to confront the cleanup problem, much more is needed.

EPA has initiated a hazardous waste task force and tracking system and contracted for site investigations and site analyses. To date, EPA has concentrated on the highly visible, emergency cases that have been brought under public scrutiny by the Congress, the general public and the press media.

We continue to believe that there is a need to completely assess the scope and nature of the closed and abandoned site problem and its true economic and environmental cost to the country.

As you know, the recently published hazardous waste regulations are voluminous and complex. A thorough analysis would require much additional time. We would like, however, to make some observations regarding those regulations that apply to owners and operators of hazardous waste treatment, storage, and disposal facilities.

EPA acknowledges that it may take several years to fully develop the data base, and to perform the analyses necessary to resolve the more complex technical issues that may be raised regarding facility operations, before nationally applicable detailed technical standards for facility operations can be promulgated.

The regulations promulgated to date, called phase I, largely deal with prescribed recordkeeping, reporting requirements, and good management practices, which are not highly technical.

The more specific standrads for the operation of hazardous waste facilities are to be promulgated in phases II and III.

Phase II, to be issued in the fall of this year, will provide additional regulations to allow permits to be issued for facilities based on each EPA regional administrator's best engineering judgment of the data the applicant submits and, the technical requirements the facilities should meet. It will be left to each region to determine what constitutes an adequate facility operation.

Our experience shows that a governmental agency needs to speak with one voice to avoid confusion and the possibility that a facility developed based on requirements for one region may not be acceptable in another.

The phase III regulations, which EPA has stated may take several years to promulgate, will deal with the further resolution of specific technical issues such as site design and engineering requirements. Standards may be established for specific industries as well as for wastes requiring special controls. Throughout the process, the regulations will continue to be changed and revised.

In the case of the land disposal—specifically landfill—requirements, the regulations provide general operating requirements, including general requirements for waste analysis, surveying and recordkeeping, closure and post closure of the site, and special requirements for liquid and incompatible wastes, and waste containers. Specifics on how to develop a site are not provided.

With regard to the underground injection control program, I understand that EPA issued regulations just a few days ago on June 24.

In summary, in the face of Love Canal and situations such as at the Valley of the Drums and in Toone, Tenn., it is now generally agreed that major new emphasis should be provided for hazardous waste disposal practices in the country.

The continued reliance on land disposal as the predominant disposal method for the long term may need to be significantly reduced in view of the prospect for environmental disasters that it may entail.

Consideration also needs to be given to the further development and application of other methods of disposal, for example, the deep well injection of wastes, and the destruction of hazardous wastes by high temperature incineration.

It appears facilities need to be developed on a regional as opposed to on a local need or individual company basis because environmental and cost impacts can often be reduced. We do not perceive any fundamental basic research needs that would preclude the development of facilities at this time. Substantially more time will be needed before the hazardous waste regulations are fully and effectively promulgated and implemented by EPA.

Finally, Mr. Chairman, legislation which confronts the issue of closed and abandoned dump sites, such as is currently under consideration in the Congress in the so-called super fund bills is essential to solving the cleanup problem facing the country.

This concludes my prepared statement. We will be glad to respond to any questions you may have.

Mr. GORE. I appreciate your statement very much, Mr. Eschwege.

Do either of you gentlemen, Mr. White or Mr. Polkowski, have a statement you wish to make?

Mr. WHITE. No.

Mr. POLKOWSKI. No.

Mr. GORE. Fine.

Let me try to boil down parts of your testimony and go back over some parts of it in a little different form.

The predominant disposal practices today are the landfill method, incineration, and deep well injection. If you had to put a percentage of waste disposal in each of those three categories, almost all of it would be landfill, correct?

Mr. **Eschwege**. The latest statement I saw of EPA's estimate was close to 95 percent.

Mr. **Gore**. Ninety-five percent in landfills. What would be the breakdown between the other two, 4 percent in deep well injection and 1 percent in incineration?

Mr. **Eschwege**. I am not sure of the percentages.

Mr. **Gore**. Just a rough estimate.

Mr. **Polkowski**. I would estimate approximately equal between well and incineration.

Mr. **Gore**. On the cost of incineration versus the cost of deep well injection, can you give me an estimate?

Mr. **Polkowski**. It depends, of course, on the substance, but generally it was estimated incineration would cost three times as much as deep well injection. This is for an equal volume of the same substance.

Mr. **Eschwege**. In both of them the initial costs are higher than for landfill.

Mr. **Gore**. Substantially higher?

Mr. **Eschwege**. Yes.

Mr. **Gore**. If the landfills are used in the sloppy way that they are used now.

Mr. **Eschwege**. Yes. This is why the emphasis should not be on initial costs. The subsequent cost, you may have to put into a safe landfill—I am not sure there is a safe landfill—would be tremendous.

Mr. **Gore**. So that cost comparison is only valid if one assumes a rather haphazard use of landfills?

Mr. **Eschwege**. That is correct.

Mr. **Gore**. If landfills were secured and if some sensible regulations were complied with then the costs might be more equal?

Mr. **Eschwege**. Right.

Mr. **Gore**. Do the regulations promulgated pursuant to RCRA create incentives for the use of any of these three technologies?

Mr. **Eschwege**. They don't exactly stress one against the other. However, you could say in the long run if they were fleshed out to make these landfills safer it would be much more expensive to use landfills and that might be in favor of going to, in some cases, deep well injection or incineration.

Mr. **Gore**. Of course, they are not fleshed out. Not only are they not fleshed out, they are not very sensible.

Mr. **Eschwege**. They are very general right now.

Mr. **Gore**. Mr. Polkowski.

Mr. **Polkowski**. Yes. We would also encourage recycling and recovery which would be the first alternative that should be considered rather than disposal. Disposal should be the final choice with hazardous substances.

Mr. **Gore**. And the changing of the processes to reduce the amount generated in the first instance.

Mr. **Polkowski**. Yes; we would encourage the use of conservation, recycling, and recovery.

Mr. **Gore**. You made a statement a minute ago, Mr. Eschwege, "I am not sure there is any such thing as a safe landfill." Did you want to say that?

Mr. **Eschwege**. I am not a scientist, but everything we have read on this is that at some point in time there will be leaching from these landfills. The extent to which this could be safe, even though it leaches, depends upon what is underneath—is it going to enter the groundwater or are people going to build on this landfill in any shape or form?

So it is a very tenuous thing and I think everybody agrees that landfill is the least desirable of the three methods that we currently are talking about.

Mr. **Gore**. By far.

Mr. **Eschwege**. By far.

Mr. **Gore**. If you set out to construct a landfill that minimizes the risk of environmental damage, how would you go about it?

Mr. **Polkowski**. First of all, you should probably limit the type of substances that you are putting in the landfill. Some of the more highly toxic substances that don't deteriorate except over long periods of time should probably not be put in a landfill.

Second, you should compartmentalize, put only selected substances in selected areas. The landfills should be lined with clay or some other suitable liner.

I am not a technical person but subsequently upon using the landfill it should be properly capped. Rainwater should be prevented from entering, and finally there should be some kind of leachate collection system in the eventuality leachate is generated so that it is not allowed to enter groundwater.

These would have to be looked at on a site specific basis but all of this would take the costing beyond the methods used today.

Mr. **Gore**. Those sound like sensible recommendations to me. Ninety-five percent of the waste is going into landfills and if you want to do it in a sensible way you take the steps you have just outlined in shorthand form there.

Can we assume that the RCRA regulations that have been promulgated require all those steps?

Mr. **Polkowski**. As we testified, the regulations at this point are not particularly technical and they are very general.

Mr. **Gore**. They don't require any of those steps at this point?

Mr. **Polkowski**. No.

Mr. **Gore**. Do they prohibit the dumping of the highly toxic substances in the first category that you referred to?

Mr. **Polkowski**. We have not analyzed the types of substances that are tolerable for landfills as opposed to the ones that should not be included.

Mr. **Gore**. But the RCRA regulations make no distinction?

Mr. **Polkowski**. They specify certain substances as tolerable for landfilling as well as the other processes. I don't know whether these are proper limits or not at this point.

Mr. **Gore**. Do they say that any particular substance cannot be dumped into landfills?

Mr. **Polkowski**. By exclusion I would say yes. Where they are not listing the substance for allowance in the landfill, it may be prohibiting it.

Mr. **Gore**. I can see the CMA lawyers on that point right now. What do you think about that?

Mr. **Polkowski**. I want to stress, Mr. Chairman, we did not analyze the types of substances that are acceptable for landfilling. That was something that was beyond the scope of our initial review.

Mr. **Eschwege**. I think—Mr. Polkowski may correct me on this—this is the first phase only and I think EPA is planning to come out with more detailed regulations on the issue. This may take some time to work out. I think they are probably in a better position to know when that will happen.

Mr. **Gore**. Let's distinguish between interim status regulations and the best engineering judgment system. Clearly there are severe problems with the interim status regulations. They are ludicrous in my judgment. Maybe that is too strong a word. Who is going to be making the decisions on the BEJ?

Mr. **Eschwege**. That is going to be your regional administrators and what you are faced with as we point out in our statement is different judgments in different regions. Not everybody is going to have the same judgment. In this case that is a problem. It is going to give industry a problem, too.

Mr. **Gore**. This is a structural problem with EPA's management plan. They haven't been able to make up their minds about where key decisions are made, and you get a shuffling back and forth between the central office and the regional offices.

In the regional offices the role of the States is varied and unclear. Are State officials going to be interpreting or playing a role in the BEJ system as well?

Mr. **Eschwege**. I would think they would help furnish some of the information which then EPA regional administration would use to make the judgment but there would also be the information from industry, of course.

Mr. **Gore**. On what basis are the BEJ determinations going to be made? Do they have any basis? Have they clearly set out the basis on which those judgments are supposed to be made?

Mr. **Eschwege**. I don't think EPA has clearly set out yet as to what basis it will use. I would suspect they would use the information from industry and information they might gather themselves plus the State information to make this judgment.

Mr. **Gore**. What are the common health and environmenta problems characteristic of landfills? If you had to give a short list what would be the common set of problems associated with landfills?

Mr. **Eschwege**. One which we have already mentioned is tha they will generally leach. If it is located to potable groundwate aquifers, drinking water can be contaminated. Also, once you us land for a landfill its use for general urban purposes such as fo housing development would not appear to be possible without ex posing residents to health and environmental dangers.

It would probably be best, if you had to use this land, to devot these areas to industrial uses such as developing a tank farm fo petroleum storage. In other words, it would be very restricted as what you could use the land for.

Mr. **Gore**. We are going to continue to see landfills used as a primary disposal method for the foreseeable method. Is that a fair prediction?

Mr. **Eschwege**. Yes.

Mr. **Gore**. Should we continue to rely on them?

Mr. **Eschwege**. It is not something you can change overnight but everything indicates we ought to start deemphasizing landfills. We ought to be using where we can—and you can't use it everywhere—deep well injection. There have not been any really bad experiences if it is done properly, and certainly incineration which in many cases can completely destroy the hazardous wastes.

In other cases there will be residues and you may need some landfills to take care of that residue but it would be a much smaller volume involved.

Mr. **Gore**. You speak well of the deep well injection technique. Wasn't there a serious problem in Ohio with a geyser of hazardous wastes coming back up out of the ground?

Mr. **Polkowski**. I am not familiar with the Ohio example but there have been instances where there were problems with deep well. I am emphasizing deep well disposal. That type of example generally was attributed to improper technology or special blowout prevention equipment was lacking or the technical application of the process was not adequate largely rather than the process itself being inadequate.

We emphasized the need for continued control of the process in the well development and operating phases as an alternative to solving that difficulty.

Mr. **Gore**. I recognize now Mr. Lent.

Mr. **Lent**. Thank you, Mr. Chairman.

I have been told, Mr. Eschwege, that in Europe, the burning of garbage is far more common than it is in the United States. Do you have any information on that?

Mr. **Eschwege**. We have done some research on what other countries are doing.

Mr. **Polkowski**. They do burn substantially more, but they do not have the strict limits on burning that we do with regard to the air pollution problem.

Mr. **Lent**. One of my local public officials up in Long Island recently returned from a European trip where he looked at some of the garbage-burning facilities in Switzerland, Germany, and the Netherlands.

He tells me with the escalation in fossil fuel costs some of the local municipalities are looking forward to the day in the not too distant future where they will be able to sell their garbage and get a pretty good return on it.

Mr. **Eschwege**. Mr. Lent, we have done some work in this area and issued some reports on this which may be of interest where we feel more can be done to utilize the wastes to extract minerals, to use it for converting it to energy and to also codispose sludge with garbage, and use one to burn the other.

I think we are not nearly as far along in that area as we should be. It may come to a point where this is going to be cost effective and then more will be done to utilize this kind of waste disposal which is really recovering, recycling, and using it for energy which is the highest form we would advocate.

Mr. **Lent**. You indicated that these landfills, once they are filled, should be preferably used as tank farms and industrial sites. Many communities, particularly in the New York metropolitan area, have covered over these landfills and we now have recreational facilities on top—golf courses, playgrounds, and little leagues.

What is your opinion of that sort of utilization?

Mr. **Eschwege**. First, you have to find out what is in there, how toxic is the material, and so on. I think EPA doesn't know in many of these. New York, incidentally, has done quite a bit of work recently on trying to identify some of these sites and trying to find out what is in them. I believe out of about 600 sites they have identified over 150 that were considered to be pretty hazardous.

If you find one of those hazardous ones, obviously it is not a good thing to put a recreational area or school or home or anything like that on top.

Mr. **Lent**. In their testimony to be given today, the EPA describes its recently established hazardous waste site enforcement and response system which will establish a site tracking system to identify known or suspected hazardous waste sites.

Are you generally familiar with that system?

Mr. **Polkowski**. Yes; what EPA has done to date is necessary and we would commend it and obviously concentrating on the more immediate and visible problems is important.

Our suggestion would be that the total scope of the problem be judged in perspective somewhat on the order of what the State of New York has done where a statewide assessment was made on a county-by-county basis as to where these sites are and judgments made as to which are hazardous and then a ranking process as to which should be considered first. We think that is important nationally.

Mr. **Lent**. Has the EPA set that system up in that fashion? Do you feel that EPA is proceeding in a most effective manner to set this system up?

Mr. **Polkowski**. Not at the present time. Limits, of course, are placed on EPA in view of the staffing and funding limitation. But they are predominantly using the inventory that was produced as a result of the chairman's letters to chemical companies and additional information being obtained from the State governments as well as from the general public.

Mr. **Eschwege**. I might add one thing EPA might want to do, because it has limited staff resources and funds, with States like New York—if they could get them to do some of this work on their own, it would help to eventually get a complete inventory.

Mr. **Lent**. Whenever I talk to our State people, they always say they don't have any money; let EPA do it.

Mr. **Eschwege**. It is unfortunate, but the Love Canal situation has forced them into doing this.

Mr. **Lent**. In your testimony, you indicate that your investigation shows that to date EPA has not yet made detailed estimates of the total number of closed and abandoned sites. Yet, in EPA's testimony to be given, they say that as of May 31, 1980, their site tracking system listed 5,790 potential hazardous sites on regional investigation.

I don't know whether that is a discrepancy. Could you comment on what appears to be a difference of opinion on EPA's progress in this area?

Mr. **Eschwege.** I think there have been all kinds of estimates, first of all, in the total number of sites and how many are hazardous. I don't really think that—they can speak for themselves—EPA would disagree that they have not done the kind of inventory that is needed. You need to identify what is in those sites.

I don't think they have done that with respect to more than—the last figure I saw was 151.

Mr. **Lent.** Let's take an area where groundwater is used as a source of drinking water. In your opinion, what is the best method of disposal of wastes in those areas?

Mr. **Eschwege.** I think eventually the best method would be incineration with deep well injection. The reason I don't mention that first is because it is not possible to do everywhere. The geology has to be just right and there are only limited areas where you can do it.

Short of disposal, of course, as we pointed out, there are other ways of recycling—recovery and using it for energy.

Mr. **Lent.** Has the GAO done any sort of research on the issue of hazardous waste site location?

Mr. **White.** We looked at it in this review and the siting is a very difficult problem. No one wants a hazardous waste facility in his area. I know in talking to some of the State officials they have constantly brought this point out, it is very difficult to find a place to do it.

I think that is one of the reasons we would favor regionalization. It does give you a bigger geographical area to work from.

Mr. **Eschwege.** I think, as you know, there is opposition to siting. We have even inquired about siting some of these things on public land. That has had some community opposition as in the case where it is a military base.

Mr. **Lent.** I have no further questions, Mr. Chairman, at this time.

Mr. **Gore.** The gentleman's time has expired. I recognize my colleague from New Jersey, Mr. Maguire.

Mr. **Maguire.** You indicate in your statement, Mr. Eschwege, that high temperature burning is the most expensive and that land disposal is the least expensive but you don't give us relative degrees of magnitude there. I wondered if you could help with that, particularly in view of the fact that you also indicate that as land disposal opportunities decline and as regulations begin to focus in with respect to what has to be done on land disposal, it will become more expensive.

Is there any point at which the cost of land disposal and high temperature burning begin to approach each other?

Mr. **Eschwege.** One other thing I need to explain; we are talking about initial costs here. Obviously, landfill may be much less expensive to start with, but if you wind up having to clean it up and compensating people for bad health effects it is going to eventually—the life cycles of its costs will be a lot more than anything else.

We have not independently tried to find out what the various costs are. There is very little incineration going on today. I have seen figures that people have estimated that right now incineration is 10 times as expensive as landfill.

I wouldn't want to vouch for those figures because land can be more expensive in one place than another and depending on how you dispose of it on the land has a lot to do with the costs.

Mr. **Maguire**. Can we get better projections of what those cost relationships are likely to be in the future if we are not talking about initial costs but overall or life cycle costs?

Mr. **Eschwege**. Offhand, I don't know of a good way of doing it other than it would be my hope if incineration caught on more we would find some very effective but cheaper ways of incinerating.

As I indicated earlier, with EPA's regulations if they take hold, restricting how you go about landfilling, economics would take care of it at some point. But I don't know where.

Mr. **Maguire**. I think it is very important for us to try to make some projections on precisely that point in order to make intelligent decisions now about which way we ought to be going. If we are only talking about 2 or 3 percent being disposed of through high temperature burning, it is clear there is going to be a need for incentives to be developed.

In the absence of data that show the cost curve of landfill moving up and possibly economies to be gained with better technology or greater scale on high temperature burning, we are going to have continued recitations of this enormous gap in initial costs. This will discourage people who don't look into it with care, and we will not be able to assess the high costs of the leaching process that you have alluded to and the problems then of cancer or genetic damage that might ensue.

Mr. Chairman, I hope this is something the subcommittee can look into a bit more and perhaps get some expert assistance because I think it is the key to the economics of this.

Mr. **Eschwege**. Sir, it is not a simple either/or. It is an important issue, one which I think we can look at more because there are other things that come into play, recycling, using this waste for energy and so on, which could help alleviate the whole problem of having to either choose landfill or incineration.

Mr. **Maguire**. Except that you have also indicated that as landfill sites become more scarce we are going to have to shift a percentage of that to other methods and yet we are always going to have a certain amount of solid waste and residues from the burning which, as I undertand it, have to be put into land disposal sites.

It would seem the premium, therefore, would be on reserving those sites for those purposes.

The specifics of the proposed and final regulations you haven't spent a lot of time on in your statement. Do you have any comments on facts like the exemption on generators being raised from 100 to 1,000 kilograms or the toxicity characteristics of being raised from 10 to 100 times the drinking water standards?

Mr. **Polkowski**. We have no comments on those issues.

Mr. **Maguire**. What about the exclusion of the utility wastes at this point? Do you have any comment on that?

Mr. **Polkowski**. We have not analyzed the appropriateness of certain ones versus others.

Mr. **Maguire**. We will have an opportunity to talk with EPA about that.

Mr. **Gore**. Thank you, Mr. Maguire.

We have a vote on a conference report on the floor. So we will, with your indulgence, return with this panel in about 8 minutes.

[Brief recess.]

Mr. **Gore**. The subcommittee will come to order.

I recognize now my colleague from California, Mr. Dannemeyer.

Mr. **Dannemeyer**. Thank you.

I am interested in your treatment of the high temperature waste incinerator possibility. We had a gentleman from Kentucky, I think it was last year, before our subcommittee who made the observation that he believed that the private sector was in a position to provide the basis for disposal of much of the waste, industrial waste, in the country if we would just establish some guidelines so that the private sector would know where it stands on the issue.

I would like to know, from your investigation, how many of these high temperature incinerators—1,000° C. or more—we have operating in the country today? Did you discover that?

Mr. **Eschwege**. We asked that same question. Very few. We have gotten the range, anywhere from 6 to about 20, less than 20. That is all we have.

Mr. **Dannemeyer**. Currently operating in the United States?

Mr. **Eschwege**. Yes, sir.

Mr. **Dannemeyer**. In private hands?

Mr. **Polkowski**. Yes, sir, in private hands.

Mr. **Dannemeyer**. How are they being fueled?

Mr. **Polkowski**. It depends on the substance that you burn. In some instances you need fossil fuel; in others you do not. One of the cost factors that is important to burning is whether you do need to use auxilliary fuel or not, and also the volume you would be burning.

Mr. **Dannemeyer**. This witness stated that much of the waste we have to dispose of is hydrocarbon based, which means it will burn in high temperature incinerators.

Mr. **Polkowski**. Yes, sir.

Mr. **Dannemeyer**. The impression I got from the gentleman was that the process would be power productive and that the waste would provide the energy with which to burn itself, and also as a plus factor, produce power which could be sold to the power grid. Did you discover anything about that?

Mr. **Eschwege**. I think this would be an ideal situation. There is waste like that. I can't tell you how much of it is that way and how much of it is like Mr. Polkowski was saying which actually would require additional fossil fuels and which would make it a lot more expensive.

Mr. **Dannemeyer**. For instance, these 5,790 potential hazardous waste sites, how many of them contain hydrocarbon based waste within them, do we know?

Mr. **Eschwege**. No.

Mr. **Polkowski**. That type of information wasn't readily available either in the States or in the regional offices we visited.

Mr. **Eschwege**. And we did go to 6 States, 3 regional offices, and 25 sites, and that kind of information is not being gathered. This is one of our problems, I think one of EPA's problems, that we don't know what is in there.

Mr. **Dannemeyer**. In further discussing what the gentleman from Kentucky said to the subcommittee last year, he mentioned that in Europe they are actually using these high temperature incinerators as a core system for disposal of waste and it is all part of a package where they have a landfill in operation. They also have to have a site for the burial of nuclear waste, not the residue from processing, but clothing and that type of material that has to be disposed of in some safe manner, on the same site.

Did your exploration and investigation reveal any concept of that type?

Mr. **Eschwege**. Well, this gets to regional savings, really, where if you have fewer but larger sites, you can do this sort of thing. You can have landfills, you can have incineration. You might even have deep well injection.

There is this work going on with the New England Commission now where they are trying to set up regional sites which would have multifaceted ways of disposing of the waste. I think it would be a very good way of doing it.

Mr. **Dannemeyer**. Thank you, Mr. Chairman.

Mr. **Gore**. I recognize my colleague from Illinois, Mr. Corcoran.

Mr. **Corcoran**. Thank you, Mr. Chairman.

I am sorry that I was not here for all of your testimony, but I do have a few questions based on your written statement.

First of all, in connection with the land disposal that is being used, it is my reading of your statement that as of today the Environmental Protection Agency has not yet developed any reliable data on the extent to which land disposal is being used in this country on the locations of the disposal sites or total number of closed and abandoned sites.

Based on your investigation, do you have any statement at this time as to why EPA has not developed reliable data in this regard?

Mr. **Eschwege**. I believe it is a matter of money and staff, and they hope to rely to some extent on the States and localities to identify these kinds of sites. And there have been some States—I mentioned New York, which have taken the lead in identifying those sites and then EPA feels its role would be to try to gather this information from the various States in order to come up with a consolidated inventory for the country.

Mr. **Corcoran**. But would New York be a unique example in thi respect?

Mr. **Eschwege**. Yes.

Mr. **Corcoran**. Would we conclude, therefore, that the State have not really done very much?

Mr. **Eschwege**. I think New York seems to be unique becaus the six States we did go to did not have this kind of information.

Mr. **Corcoran**. What were those six States?

Mr. **Eschwege**. Texas, Pennsylvania, Maryland, Louisiana, Ill nois, and Michigan.

Mr. **Corcoran**. Second, in talking about the research strategy o the Environmental Protection Agency in your testimony, you see to make the point that until 1979 EPA primarily emphasized nonhazardous disposal problems.

Are you suggesting that they had a mistaken strategy and that rather they should have concentrated long before now on the hazardous waste problem?

Mr. **Eschwege**. Well, I am really not suggesting that, of course, but RCRA did come into being in 1976 and I don't know what the budget situation was. What I am saying, too, is that they got a lot more money from the Congress in the last year to do this kind of work which allowed them to put more emphasis on it. Perhaps they could have started earlier.

Mr. **Corcoran**. But when they started, they could either go down the road of looking at the nonhazardous wastes and the problems associated with that, or go down the road of looking at the very beginning at the hazardous wastes.

It is my understanding—I think your testimony confirms this—that in the beginning they looked first at the nonhazardous wastes, and I just wonder whether in your opinion, and based on 20-20 hindsight, it might have been better for them to focus on the more important type of waste?

Mr. **Eschwege**. I think if I were to use 20-20 hindsight, I would say, yes, it would have been better for them to go into that.

Mr. **Corcoran**. Was there any explanation given by the agency as to why they chose that approach?

Mr. **Polkowski**. In fairness to EPA, the solid waste volume is some 3 to 4 billion tons annually, while the hazardous waste, depending on the definition, is in the 40-70 million tons volume.

One of the basic approaches that should be emphasized is not the matter of disposal but the matter of recovery and conservation. Much of EPA's approach dealt with recyclings and alternatives to disposal which should be the primary emphasis.

I think in retrospect it is easy to say that hazardous wastes should have been emphasized in view of Love Canal or some of the more crisis circumstances, but in 1976 the ultimate danger that has been recently described was not general knowledge. So there was some logic in their original perception.

Mr. **Corcoran**. I appreciate your comments.

Mr. **Gore**. Thank you.

I would like to revisit the issue of whether or not any waste can be dumped in a landfill. You mentioned by listing some others were implicitly excluded.

Mr. **Eschwege**. I think we consulted, too, a little bit on this since.

Mr. **Gore**. You want to amend your answer on that?

Mr. **Eschwege**. Yes, I think so. As I understand it, there are no specifics on what chemicals or other hazardous wastes can be put into these landfills.

Mr. **Polkowski**. The regulations do not specify which form of disposal should be used for which wastes. They do identify hazardous wastes that should be given special disposal treatment.

Mr. **Gore**. But they don't say kepone, for example, can't be dumped into a landfill?

Mr. **Polkowski**. I can't respond to kepone.

Mr. **Gore**. Well, they don't say anything——

Mr. Eschwege. They don't specify, no.

Mr. Gore. As far as the rest are concerned, anything can be dumped in a landfill, right?

Mr. Polkowski. Assuming it is an EPA defined hazardous waste.

Mr. Gore. Sections 265.312 and 313 are the relevant sections, as I read the regulations, on that point.

Now also I want to revisit your response on deep well injection. Do these figures sound correct that there are 400,000 injection wells currently in operation with 5,000 new ones each year and 7,500 directly injecting hazardous wastes into underground drinking water?

Mr. Polkowski. I don't know whether the figures are correct, but there are a great many other wells other than deep wells. What we are talking about are the ones below the aquifer. There is a whole range of wells.

Mr. Gore. So you are talking about deep well injection instead of the other?

Mr. Polkowski. Right.

Mr. Gore. Maybe there is a problem with definition, but if we have 7,500 injection wells putting hazardous wastes directly into drinking water supplies, that is a problem, isn't it?

Mr. Polkcwski. I think the new regulations are going to address that in that area.

Mr. Gore. I hope so. They don't, the new regulations don't address that. That would seem to be an oversight or deficiency, wouldn't it?

Mr. Polkowski. I am not familiar with it.

Mr. Gore. If we have 7,500 wells directly putting hazardous waste into drinking water, that is something that any reasonable set of regulations ought to be directed at.

Mr. White. I think that should probably be part of their fall regulations that they plan to come out later in the fall.

Mr. Gore. Well, I would hope so.

Now in light of these figures, do you want to qualify your response on deep well injection at all? I will allow you to do so for the record if you wish.

Mr. Eschwege. Well, we would have to look at those figures. We have not seen them. All we were saying really is that the deep well injections that have occurred with some exception have not created any major problems and we have gone back to Texas where this was first started in 1938.

Mr. Gore. Would you gentlemen be willing to answer additional questions in writing? Mr. Maguire has several additional questions.

Mr. Eschwege. Certainly.

Mr. Gore. And I have a couple here.

Mr. Eschwege. We will be glad to do that.

Mr. Gore. With regard to regional waste facilities, did State and local officials have criticisms of the EPA's role in the development of regional waste facilities? If you could give a brief response.

Mr. Eschwege. Now?

Mr. Gore. Yes.

Mr. Polkowski. I didn't have any indication of any special criticism on the part of regional State officials with regard to EPA's participation in regional facilities. EPA has encouraged the development of regional facilities. The limits, of course, are in the amount of grant money that was available to them.

Mr. ESCHWEGE. One problem with regional facilities that perhaps we should mention is that you may have to transport the waste over fairly long distances in some cases and this could be a problem to the communities through which you transport it.

Mr. GORE. Well, we have another vote on the floor. This is a good point to change panels.

Let me again express my appreciation to GAO and to you gentlemen in particular for the work you have done on this issue. It has really benefited us and I think the public interest.

When we return in about 8 to 10 minutes, we will have Mr. Steffen Plehn.

[Brief recess.]

Mr. GORE. The subcommittee will come back to order.

At this point, without objection, I would like to enter into the record correspondence between the subcommittee and the Environmental Protection Agency which is pertinent to today's hearing.

[The following was received for the record:]

CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS
OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE
WASHINGTON, D.C. 20515

May 30, 1980

Honorable Douglas M. Costle
Administrator
Environmental Protection Agency
401 M Street, S.W.
Room West 1200
Washington, D.C. 20460

Dear Mr. Costle:

Reference is made to the report entitled "Waste Disposal Site Survey" which was issued last October by the Subcommittee on Oversight and Investigations.

The Subcommittee is interested in determining the progress your agency is making with regard to the six recommendations set forth in the report. I would appreciate your response by June 16, 1980, concerning the status of EPA's efforts with respect to those six recommendations.

A copy of this letter is being designated for Acting Director Douglas MacMillan whose Hazardous Waste Enforcement Task Force has been working in at least several of the recommended areas.

Sincerely,

Bob Eckhardt

Bob Eckhardt
Chairman
Subcommittee on
Oversight and Investigations

cc: Mr. Douglas MacMillan

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

June 19, 1980

OFFICE OF ENFORCEMENT

Honorable Bob Eckhardt
Chairman, Subcommittee on Oversight
  and Investigations
House Committee on Interstate and
  Foreign Commerce
Washington, DC 20515

Dear Mr. Chairman:

Your letter of May 30, 1980, asked for a report on EPA's progress in addressing six recommendations contained in the Subcommittee's October, 1979, "Waste Disposal Site Survey." In response, we have prepared a background statement on our efforts in this area as well as specific responses to the Subcommittee's recommendations.

BACKGROUND

On July 27, 1979, EPA Deputy Administrator Barbara Blum established an Agencywide "Hazardous Waste Site Enforcement and Response System". One of the goals of that effort is to establish a "Site Tracking System" to identify known or suspected hazardous waste sites.

On August 7, 1979, Deputy Administrator Blum outlined the Site Tracking System in a memorandum to EPA Regional Administrators. An intensive system-development process was launched by EPA's newly-formed Hazardous Waste Enforcement Task Force, and on November 9, 1979, the attached set of site tracking and identification forms were forwarded to EPA Regional offices with instructions that the system be immediately implemented. In addition to providing a basis for a computerized system, these forms provide a uniform management approach and decision-making proces for all potential hazardous waste sites.

Regional offices were instructed to enter all known or suspected hazardous waste sites on Regional investigation logs. Information on these potential sites was to come from EPA investigators, state and local officials, and private citizens.

Once a potential site has been identified, the system calls for Regional staff to assess all existing site data from EPA, state, and local files and to use that data to establish priorities for on-site inspection and sampling. (We have attached both the initial and follow-up site prioritization guidance provided to the EPA Regional offices).

Where the evidence indicates a high priority for on-site inspections, inspections are conducted by EPA Regional staff or by state officials and documented on the attached forms. Information from on-site inspections is then used in making a "tentative disposition" indicating that a site appears to represent "no hazard" or is to be pursued as a possible enforcement case or as an emergency cleanup and containment action under Section 311 of the Clean Water Act.

At the time that the Subcommittee on Oversight and Investigation revealed the results of its Waste Disposal Survey, EPA Regional offices already had some 1536 potential hazardous waste sites on their Regional investigation logs. Regions were instructed to add all non-duplicative Subcommittee sites to their Regional investigation logs and to review those sites for priority site inspections using the established prioritization criteria (i.e., toxicity of pollutants, pathways to the environment, population potentially at risk, etc.). Additionally, all non-published Committee data which was made available to the Task Force was forwarded to appropriate Regional offices with additional copies to be made available to the states.

This data proved to be extremely useful in augmenting the existing site inventory, and highlighted the usefulness of the industrial survey approach --- particularly when backed by subpoena power. (As you know, there is currently no EPA subpoena power under the Resource Conservation and Recovery Act --- although that power is granted in the Senate version of the currently pending RCRA reauthorization.)

As of May 31, 1980, the EPA Site Tracking System listed 5,790 potential hazardous waste sites on Regional investigation logs. (As indicated on our forms and in all of our communications concerning the system, the mere listing of a locale as a "potential" hazardous waste site does not represent a finding that the site presents an actual hazard or that any illegal activity has occurred. Rather, it indicates that the site has been identified for further investigation.) This total has been growing at approximately 200 sites per month. Of this 5,790 total, 3,126 sites have had a "preliminary assessment" and 1,001 sites have had on-site inspections by Federal or state officials. 151 sites are currently under investigation for potential enforcement actions and 23 hazardous waste cases have been filed in Federal court (see attached case summarries). We anticipate filing 50 Federal enforcement actions before the end of Calendar Year 1980.

RESPONSE TO SPECIFIC RECOMMENDATIONS

Against this background, I would summarize my response to the specific recommendations listed on pages XI and XII of the Subcommittees' Report of October 1979 as follows:

Recommendation #1

> Undertake, in conjunction with the states, a comprehensive national inventory of disposal sites utilized by principal waste-producing industry groups.

The process of identifying and characterizing hazardous waste disposal sites is underway. While we have used site identification tools --- like EPA's recently completed Surface Impoundments Assessment --- to focus our attention on particular industrial classifications, we have generally emphasized our site prioritization criteria rather than emphasizing particular waste-producing groups.

Obviously, EPA and the states face a major problem in tracking the results of decades of careless and often undocumented waste disposal practices. To augment EPA's existing site identification and site inspection resources, the Agency has recently executed a $12,000,000 national contract which will place contractor teams in each Region. A total of 180 contract investigators will be allocated to our Regional Offices and will operate under Regional supervision. Additionally, this contract will allow us to quickly subcontract for additional assistance. The contract is already in partial operation and approximately 100 site inspectors are already in-place in the Regions.

Recommendation #2

> Conduct appropriate investigation with respect to all haulers identified in the survey who transported wastes to locations unknown to the waste generators to determine where such wastes were taken and the manner in which they were disposed.

While Subcommittee data on haulers has been provided to Regional Offices, the Agency will be unable to conduct a comprehensive "haulers" study until the additional field inspection resources referenced above are in place.

Recommendation #3

> Conduct, where warranted, a follow-up study of the disposal sites identified in the survey, particularly those known to be closed and on private lands, to determine whether there is reason to suspect that any of those sites pose threats to the public health or the environment.

Where the evidence indicates a potentially "high-priority" site, these studies are being undertaken. To date, however, we have focused on sites meeting our priority criteria rather than specifically on closed sites on private lands.

Recommendation #4

Utilize the survey findings as a basis for better determining the size and scope of a clean up fund for hazardous waste disposal problems.

Recommendation #5

Analyze the implications of the survey findings and reassess the scope and magnitude of the hazardous waste disposal problem relative to the implementation and management of both federal and state hazardous waste programs.

The Subcommittee survey data --- together with other site data gathered by EPA and the states --- has been extensively reviewed in terms of both "Superfund" implications and the management of Federal and state hazardous waste programs.

Recommendation #6

Reexamine, in conjunction with the chemical and other waste-producing industry groups, alternative disposal methods including reprocessing and recycling, incineration, and other technology to determine the most practical and safest means of disposal of those wastes judged to be hazardous under RCRA definitions, once EPA's regulations are promulgated.

This recommendation will be responded to in a separate letter from the Office of Water and Waste Management.

Sincerely,

Doug MacMillan

Douglas MacMillan
Acting Director
Hazardous Waste
Enforcement Task Force

Attachments:
1) Site Tracking System Forms
2) Initial Site Prioritization Guidance
3) Follow-up Site Prioritization Guidance
4) Summaries of Filed Cases

Mr. Gore. We will take our final witnesses together as a panel. Mr. Steffen Plehn, Deputy Assistant Administrator for Solid Waste Programs in the Office of Water and Waste Management with EPA; Mr. Gary Dietrich of his staff; and Mr. Douglas MacMillan, Acting Director of the Hazardous Waste Enforcement Task Force in the Office of Enforcement with EPA.

Welcome gentlemen. Mr. Plehn, please proceed.

TESTIMONY OF STEFFEN PLEHN, DEPUTY ASSISTANT ADMINISTRATOR FOR SOLID WASTE, OFFICE OF WATER AND WASTE MANAGEMENT, ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY GARY N. DIETRICH, ASSOCIATE DEPUTY ASSISTANT ADMINISTRATOR FOR SOLID WASTE; AND DOUGLAS MacMILLAN, ACTING DIRECTOR, HAZARDOUS WASTE ENFORCEMENT TASK FORCE, OFFICE OF ENFORCEMENT, EPA

Mr. Plehn. We don't have a statement.

Mr. Gore. Do any of you have statements?

Mr. Plehn. I would just like to, if I might, take 2 minutes to start off.

Mr. Gore. Fine.

Mr. Plehn. We welcome the opportunity to appear before this subcommittee again. You have certainly pursued this issue with diligence and commitment and concern and we have really appreciated that interest.

All I would like to do at the outset is to try to give you what I think is EPA's perspective on where we have come in hazardous waste and where we have to go, because we clearly have a very long way to go.

The first State law to deal comprehensively with hazardous waste was passed in 1972—that is only 8 years ago—in the State of California.

At the time that the Congress enacted subtitle C of RCRA in 1976, there were 22 people working on this problem at EPA and there were less than 100 people in all of the States combined. That is less than two per State.

We have been working very intensively in meeting the directives of the Congress for the regulations under subtitle C and on May 19 we issued this 2-inch document which we perceive as chapter 1 of a continuous effort.

What this does is to deal with all seven of the regulations that are called for under the act.

It defines the initial set of hazardous wastes.

It establishes responsibilities for generators and transporters of waste.

It establishes interim status standards to be met by all facilities which achieve interim status under the act.

It sets the rules for the issuance of permits under the act.

It establishes the policies for the assumption of responsibility for the program by the States.

And it establishes the notification procedure.

We now have ahead of us at least as many and at least as challenging tasks as that initial set of regulations constitute.

We have to develop the regulations under phase II and phase III of our program, and I know you will be asking questions about that so we can explain that in more detail at that time.

We have the problem of putting this program into operation. We believe that over 100,000 firms in this country will be affected and will be required to notify us. That is just initially, because we believe there are close to three-quarters of a million generators of some amount of hazardous waste in this country.

We have the problem of receiving applications from the States to operate this program and dealing with those. Then we will have the problem of the issuance of permits to the close to 30,000 facilities that store, dispose or treat hazardous waste.

We also have the very fundamental and extremely difficult problem of securing sites in this country where the best technology for the management of hazardous waste can be applied and, as was discussed this morning, that is an extraordinarily difficult political and social problem.

So that I think it fair to say that while we are reasonably proud of the extensive work we have done in developing these regulations to date, we recognize that there are difficulties in them and points that will need elaboration, refinement, and improvement. We are truly humbled by the task still ahead of us in trying to bring some better control over hazardous waste in our society.

Thank you.

Mr. GORE. Thanks for your statement.

You mentioned the subcommittee's pursuit of this issue. I assure you we are going to continue to pursue it because it looks like the public interest is being defeated in the trenches where the hand-to-hand combat is taking place on this issue. The industry lobbyists are winning.

Let me just ask you about this BEJ. Who is assisting EPA in the development of BEJ?

Mr. PLEHN. We are doing that as part of the rulemaking process. We proposed regulations in December of 1979 and we received extensive commentary on those. We will be considering all of those comments in the development of phase——

Mr. GORE. Who is assisting you in the development of BEJ? Is Monsanto assisting you in the development of BEJ?

Mr. DIETRICH. We retain Monsanto to help write a set of guidelines.

Mr. GORE. You have hired Monsanto Chemical Co. to write the guidelines for the BEJ?

Mr. DIETRICH. No. Monsanto Research Corp.

Mr. GORE. Monsanto Research Corp.

Mr. DIETRICH. Which is a subsidiary of——

Mr. GORE. Subsidiary of Monsanto Chemicals.

Mr. DIETRICH. They are developing a set of guidelines. They are not working on the development of the BEJ regulation. We will come out with a regulation and there will also be some guidance material that will accompany that.

The guidance material does a number of things. It reviews the state of the art of incineration; it provides methodologies in order to make certain calculations with regard to the incinerator facility.

It is more of an engineering manual than anything else. And, yes, we did retain Monsanto Research to help develop that guideline.

Mr. **Gore**. Do you think they might have a conflict of interest?

Mr. **Dietrich**. We very definitely went into that before we awarded that because we were mindful.

Mr. **Gore**. Did you decide there wasn't a conflict of interest?

Mr. **Dietrich**. We decided there was not a conflict of interest.

Mr. **Gore**. On what basis did you make that decision? I mean, they are——

Mr. **Dietrich**. First of all, what they were doing would not have any effect on the BEJ regulation.

Mr. **Gore**. What do you mean, it won't have any effect on it? They are writing the engineering manual for it, aren't they?

Mr. **Dietrich**. They are writing the manual with regard to what is the state of the art out there, basically collecting information.

Mr. **Gore**. What is possible and what is not possible? Do you think their determination of what is possible might be influenced by their judgment as to what is expensive?

Mr. **Dietrich**. I think not in this particular case. We are, however, being very, very careful about that contract. That guidance, by the way, is currently being reviewed by a number of other peer level people.

We will have a second draft toward the summer. Then it will be made publicly available for comment by the public at large with regard to that. So the ultimate product is going to have critical review by the world, if you will.

Mr. **Gore**. Well, it is going to have critical review by this subcommittee. I mean, what we have here is the public interest on the one side and a special interest, largely that of the chemical industry, on the other side.

Now in passing this law—RCRA—the Congress balanced those two interests in a general way. Laws are blunt instruments and imperfect. But in passing that law we decided that the public interest demands closer scrutiny of hazardous waste disposal.

We then turned over the job of putting that law into effect in the form of regulations to the Environmental Protection Agency.

Unfortunately, what has happened is the public interest has, evidently, been trampled by the special interests involved in the design and implementation of these regulations.

We have asked a series of questions about the first phase of regulations and the general response is later regulations will improve them. With specific regard to the interim site regulations, we are told that the BEJ or best engineering judgment standards will supplant them and improve them.

Now we find that Monsanto Chemical Co., a subsidiary of Monsanto Chemical Co., has been asked to compile the data which will form the basis of the BEJ standards. Again, the conclusion is inescapable that the public interest is losing out to the special interests and what we want to find out in these hearings is why, why?

Let me turn to the injection wells.

Mr. **Plehn**. I could add one point, Mr. Chairman.

Mr. **Gore**. Yes, you can respond to that.

Mr. **Plehn**. We would be very glad, if you like, to provide a statement about the Monsanto contract. [See p. 30.]

Mr. **Gore**. How much are they being paid?

Mr. **Plehn**. I don't know the answer to that.

Mr. **Gore**. Do you know, Mr. Dietrich?

Mr. **Dietrich**. I do not have the figure on the top of my head, no.

Mr. **Gore**. You couldn't find anybody else to do that?

Mr. **Dietrich**. Yes, we did look at a number of different contractors. The point is, you cannot find anybody in this Nation that knows about incineration that is not doing quite a bit of business with industry. You just cannot find a completely unbiased set of experts.

Mr. **Gore**. They are one of the major actors in this whole story. They are one of the major participants in the problem, are they not?

Mr. **Dietrich**. They also may be one of the major participants in the solution. They do have some very good incinerators.

Mr. **Plehn**. The point I wanted to make was——

Mr. **Gore**. We are talking about landfills here. Excuse me.

Mr. **Plehn**. I am talking about incinerators. The point I wanted to make was that we were very mindful——

Mr. **Gore**. Wait a minute. I will get back to you, Mr. Plehn. The Monsanto contract is not just for incinerators, is it? It is also for the BEJ on landfills, is it not?

Mr. **Dietrich**. Not to my knowledge. It is just on incinerators.

Mr. **Gore**. Who is doing the BEJ on the landfills?

Mr. **Dietrich**. We have about seven different documents—general guidance documents. We have no contractor doing the regulation. The regulation, the standards that are going to be set, are going to be done internally. Along with those standards you need guidance, like how do you construct an adequate liner, an adequate leachate collection system. Those will be covered in sort of an engineering manual which we are calling guidelines.

Mr. **Gore**. Is that engineering manual the one being prepared by the Monsanto subsidiary?

Mr. **Dietrich**. With regard to incinerators, yes.

Mr. **Gore**. Who is preparing that manual with regard to landfills?

Mr. **Dietrich**. There are seven different folks involved.

Mr. **Gore**. What are the names of those seven different companies?

Mr. **Dietrich**. I do not have the names.

Mr. **Gore**. Are they all subsidiaries of chemical companies?

Mr. **Dietrich**. I think none of them are.

Mr. **Gore**. You don't have the names?

Mr. **Dietrich**. Not with me. I know a couple are independent consultants. One is with a university, I recall.

Mr. **Gore**. All right. So the BEJ manual being prepared by Monsanto is with specific regard to incineration?

Mr. **Dietrich**. Yes.

Mr. **Gore**. That is an important clarification.

Mr. **Plehn**. I want to finish my point. We were obviously aware and sensitive that our choice of the subsidiary of Mansanto in this instance would be an obvious target for criticism. We, therefore, reviewed that possible action very, very carefully. It was a result of that review that we concluded that the public interest in terms of developing effective guidance for the compliance of regulations—which we will be developing separately from the development of guidance—would be best served by choosing this company which we judge, based on their experience, knowledge, and capabilities could provide the best product for us.

Mr. CORCORAN. I appreciate the chairman yielding on this point. What was the process by which this particular contract was awarded?

Mr. PLEHN. We will have to provide that.

Mr. CORCORAN. In other words, it was not a placement?

Mr. PLEHN. No, sir.

Mr. CORCORAN. It was competitive bidding?

Mr. DIETRICH. Basically it was a contract that was in place that had resulted from competitive bidding, I believe, in our research and development program. It was available to do this particular job. I think originally it was from competitive bidding.

Mr. CORCORAN. But on the BEJ point for—now we know incinerators—there was a decision on the part of EPA to award the contract to this particular company and there were no other choices from which to make the selection.

Mr. DIETRICH. I think we looked at three different companies that were available and we selected this one, yes.

Mr. CORCORAN. Thank you, Mr. Chairman.

[Testimony resumes on p. 45.]

[The following information was received for the record:]

PREPARATION OF PERMIT WRITER GUIDANCE FOR HAZARDOUS WASTE INCINERATION

BACKGROUND

On December 7, 1979 the EPA Office of Solid Waste (OSW) requested the Office of Research and Development (ORD) to prepare a guidance document on hazardous waste incineration to be used by the Agency in implementing the permit program under the Resource Conservation and Recovery Act (RCRA). At that time, the OSW was under pressure to meet a court ordered deadline. This deadline was subsequently established as October 30, 1980, but in order to meet this deadline, delivery of the first draft of the guidance document was necessary by April 1, 1980, so that adequate review of and appropriate corrections could be made to the document.

The quest for assistance from ORD was a direct result of the Agency's decision to promulgate the final RCRA regulations on the basis of a "best engineering judgement (BEJ)" concept for issuing hazardous waste management permits. The incineration guidance manual was to outline clearly the current state-of-the-art in the design and operation of hazardous waste incinerators and to delineate the factors the permit writers would consider in reviewing and issuing permits for such incinerators. Mr. Louis Lefke, Deputy Director, Municipal Environmental Research Laboratory, was requested to direct a group effort dedicated to the preparation of the guidance document. A draft for review had to be available by April 1, 1980 in order that the review could be completed to coincide with the court ordered RCRA deadline.

Because of the short deadline for preparing a draft document, its development could not be accomplished solely with EPA personnel. The tight deadline also meant that initiating a specific competitive procurement would not be possible. EPA therefore decided it would be necessary and appropriate to use the Technical Engineering and Service Contract (TESC) contract mechanism available to the Industrial Environmental Research Laboratory (IERL)-Cincinnati. Under this mechanism, eight contractors have been prequalified to perform engineering and analytical services for EPA on a task order basis. The contractors available under this mechanism are listed in attachment #1.

The procedure for determining the most appropriate contractor under the TESC system is strict, and specific guidelines must be followed. Standard areas of capability are listed in the scope of work and are required of all eligible contractors who qualified for the TESC. Different contractors possess these qualifications in various combinations. The procedure involves the development of a weighted profile of the capabilities required for a specific effort. At no time are those involved in making the selection aware of the identity of the contractors.

Accordingly, Mr. Lefke asked Mr. Warren A. Schwartz, a senior engineer in the Office of the Director of the Municipal Environmental Research Laboratory, to prepare a set of weighted qualifications keyed to the requirements of the job at hand. Mr. Schwartz was asked to do this because he was a well qualified third party not otherwise involved in this effort. His work was reviewed and approved by Mr. Lefke. Mr. Schwartz's weighted job qualifications were also reviewed and evaluated by Mr. Ivars Licis, the TESC project officer for IERL-Cincinnati. The results of this purely mechanical evaluation indicated that Monsanto Research Corporation was the most appropriate contractor for the job.

ISSUE

The selection of Monsanto Research Corporation as the contractor raised several obvious questions of conflict of interest. Monsanto Research Corporation is a wholly owned subsidiary of Monsanto Company, a chemical company and hazardous waste generator. Monsanto Company also has expressed commercial interest in hazardous waste incineration technology. The Assistant Administrator for Water and Waste Management and the Associate Deputy Assistant Administrator for the Office of Solid Waste requested EPA's General Counsel to address these issues. The General Counsel defined two sources of conflict of interest --- Monsanto Company might benefit from advanced knowledge of the regulations that EPA is developing and will promulgate for hazardous waste incinerators, and Monsanto Company might benefit from the guidance document's influence on EPA's development of these regulations.

In summary, EPA addressed these questions of conflict of interest in several ways. First, Monsanto Research Corporation was chosen only because it was the most qualified organization from among the eight firms available. Second, the conflicts of interests of the contractor were recognized and measures were taken to assure that Monsanto Company would not benefit from prior knowledge of the incinerator regulations. Specifically, EPA adopted two procedural safeguards to assure that Monsanto Research Corporation would not be able to bias the guidance document for the benefit of Monsanto Company. The first procedure was the development of a sixty-page, detailed outline of the document and the very close supervision of the contractor's work in assembling the information comprising each section of the document. The second procedure was the requirement that the draft document be extensively reviewed by a number of knowledgeable organizations and individuals to see that the report was of high technical quality and did not show a bias toward Monsanto Company's single point of view.

MONSANTO COMPANY ADVANCED KNOWLEDGE

The subject of conflict of interest was first openly addressed by ORD after receiving Mr. Michael Dworkin's memorandum to Mr. Lefke on March 13, 1980 (attachment #2). Mr. Dworkin, an attorney in the EPA Office of General Counsel, expressed concern about a potential conflict of interest in using Monsanto Research Corporation for preparing the guidance document. His concern evolved from the fact that the Monsanto Research Corporation is a wholly owned subsidiary of Monsanto

Company. Monsanto Company is a large manufacturer which also operates and may have other commercial interest in a hazardous waste incinerator technology. Monsanto Company, therefore, could possibly derive benefit from Monsanto Research Corporation's potential influence on the guidance document and the associated regulations and from early access to the information to be contained in the document.

Mr. Dworkin's concerns were responded to by Mr. Lefke in a March 21, 1980, memorandum (attachment #3). As his memorandum indicates the potential conflict of interest issues were addressed by (1) the existence of an "Organizational Conflict of Interest Clause" (attachment #4) in the basic contract with Monsanto Research under the TESC and (2) a "Restraint on Passage of Information Clause", (attachment #5) prepared by Mr. Richard Anderson, Cincinnati Office of EPA General Counsel. The latter clause was added to the work directive for the preparation of the guidance document. It provides that Monsanto Research Corporation must take measures to assure that the results of the project will not be released to Monsanto Company and that strict controls, including recordkeeping, will be used to restrict access to the information. All procedural conditions were accepted by Monsanto Research Corporation.

CONTRACTOR SUPERVISION

By far the most important conflict of interest concern in using Monsanto Research Corporation was the possibility that the staff of the Monsanto Research Corporation would write the guidance document in such a way as to favor the interests of the Monsanto Company as a generator, disposer and treater of hazardous waste.

The contract was structured in such a way as to minimize the opportunity for such bias. The contractor was to prepare the draft guidance document under the direct supervision of a team of ten highly experienced senior technical staff. Under the direction of Mr. Lefke, this team drew upon all of the professional experience in the Office of Research and Development, combining senior personnel with incineration experience from the Municipal Environmental Research Laboratory, and the Industrial Environmental Research Laboratory (IERL) in Cincinnati, and the Industrial Environmental Research Laboratory (IERL) in North Carolina. The team of ten EPA professionals are the best experts in the Agency. Their accumulated knowledge and credentials meet the highest professional standards, and their technical sophistication exceeds or equals that of the contractor. Mr. Lefke, the project director, felt that these EPA technical staff would have been able to produce a document of superior quality, if they, and additional personnel had been able to devote their entire efforts solely to this task. The performance of Mr. Lefke and this team was outstanding. EPA has recognized the very superior quality of their efforts and is processing awards for the participants.

Prior to contract award, the team prepared a detailed sixty-page outline of the guidance document to (1) provide the contractor with detailed technical guidance intended to expedite the completion of the task within the strict deadlines, and (2) to insure that the effort would be focused on collecting and developing specific technical information determined by the EPA professional staff as necessary to be included in the draft document.

In order to direct the preparation of the guidance document, now titled "Permit Writers Guidance for Hazardous Waste Incineration" each member of the EPA technical team was assigned responsibility for one chapter of the document. The charge to the project officers and to the contractor was that the preparation of the document was to be a joint effort. Close and frequent technical contact was to be maintained during the writing of each chapter to assure that the contents met the specifications and intent of the chapter outline provided by EPA.

Two additional contractors were given responsibility for preparing other chapters in the document. The IERL-RTP team members used Arthur D. Little, Inc. to prepare Chapter 3, "Waste Characterization" and TRW, Inc. to prepare Chapter 5, "Air Pollution Control Device Evaluation". This was appropriate since these firms were working in related areas.

Monsanto Research Corporation supplied four year's of work effort or approximately sixteen employee's full time for a period of slightly less than three full months. The EPA team of ten technical personnel supervised this effort very closely and the work effort, itself, was defined by a very detailed outline, as discussed above. Each project officer devoted a considerable portion of his time during the ten week period to supervising and participating in the preparation of the document. This degree of participation, combined with the extremely narrow scope of task assignments, made it extremely unlikely that Monsanto Research Corporation would be able to bias the guidance document.

PROFESSIONAL REVIEW

Extensive peer and policy review of the draft document was planned at the outset of the effort. The draft document produced was extensively reviewed by the EPA technical team augmented with personnel from the Office of Solid Waste, the Office of Air Quality Planning and Standards and EPA Regional Offices. Technical peer review was also obtained from Research Triangle Institute, IT Enviroscience, Mitre Corporation, and Boyd Riley, a private consultant. Ultimately, after revision, the final draft will be published and made publically available. Concurrent with such publication, EPA will invite public comments through a Notice published in the Federal Register. EPA will consider any public comments received in developing a final guidance document which will be used for reviewing and issuing hazardous waste incinerator permits.

Monsanto Research Corporation has supplied a first draft of a Engineering Handbook on Hazardous Waste Incineration. This is basically an extraction and reordering of the detailed engineering information presented in the draft guidance. Peer reviews of this document will again be provided by the Office of Research and Development and the Office of Solid Waste. Outside reviews will be provided by Dr. Boyd Riley, Mitre Corporation, and two contractors who are currently being selected. The final version of the Incinerator Permit Guidance Manual is now being prepared by Mitre Corporation. Both the Permit Guidance Manual and the Handbook will be noticed for public comment and circulated for scientific review.

SUMMARY

EPA contracted to obtain technical skills in the preparation of a detailed guidance document for permit writers charged with exercising "best engineering judgement" in the review of hazardous waste incinerator permits.

The very restrictive time schedule and the intense demand of EPA personnel meant that EPA could not develop the document in-house and had to rely on contractors to help prepare the document. The time schedules also meant that a full competitive process for contracting was impossible. EPA selected the most highly qualified contractor from the eight available. This was Monsanto Research Corporation. EPA recognized the conflict of interest between the parent corporation Monsanto Company and the regulation of hazardous waste.

Pollution control is a highly specialized technical art. Organizations and individuals processing detailed knowledge in the area are almost never free of interest or from association with a regulatory or regulated organization. The project manager and senior EPA management felt, and continue to feel, that the potential for bias would be disclosed and could be managed. They therefore felt that the best course of action was to continue the project with Monsanto Research Corporation.

Controlling the opportunity for bias meant an enormously detailed specification of the tasks to be performed, extremely intensive EPA supervision of contractor activities, and multiple review of the draft reports.

EPA believes the Monsanto draft is an objective report of excellent technical quality.

ATTACHMENT #1

TEBC CONTRACTOR INFORMATION Rev. 9/15/78

(18 - MONSANTO RESEARCH CORPORATION - 68-03-2550)
Dr. William H. Hedley
Dayton Laboratory
1515 Nicholas Road
Dayton, Ohio 45407
8-774-2700, ask for 268-3411

(17 - BATTELLE MEMORIAL INSTITUTE - 68-03-2552)
C. Ray Smithson, Jr.
Columbus Laboratories
505 King Avenue
Columbus, Ohio 43201
Battelle - 8-976-6424
Smithson - 8-976-7814/6

(19 - HITTMAN ASSOCIATES, INC. - 68-03-2566)
Dr. C. Leon Parker
Dwight B. Emerson
9190 Red Branch Rd.
Columbia, Maryland 21045
Phone: 8-920-3311, ask for 730-7800

(31 - ACUREX CORPORATION - 68-03-2567)
Larry Cooper - ext. 3471
Aerotherm Division
485 Clyde Avenue
Mountain View, California 94042
Phone: 8-(415)-964-3200

(60 - TRW, INC. - 68-03-2560)
Irving Zuckerman
Energy Resources Group
One Space Park
Redondo Beach, California 90278
Phone: 8-(213)-536-1413
Home: (213)-375-4706

(56 - MIDWEST RESEARCH INSTITUTE - 68-03-2563)
Dr. A. D. McElroy
425 Volker Blvd.
Kansas City, Missouri 64110
Phone: 8-758-7212, ask for (816)-753-7600

(41 - THE DOW CHEMICAL COMPANY - 68-03-2568)
Mohamed A. Zeitoun
Freeport, Texas 77541
8-749-1011, ask for (713)-238-4807

(1 - JACOBS ENGINEERING CO. - 68-03-2569)
Henry Cruse
Lucille Page -ext. 419
Krishnan (P.O.)
251 South Lake
Pasadena, California 91101
Phone: 8-(213)-449-2171

ATTACHMENT #2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
GENERAL COUNSEL

MEMORANDUM

SUBJECT: Incinerator Guidance Manual, MRC Contract: Apparent Conflict of Interest

FROM: Michael Dworkin MD
Attorney
Water and Solid Waste Division (A-131)

TO: Lou Lefke
Deputy Director
MERL

Eckhardt Beck and Gary Dietrich have asked for an OGC review of this contract. This is a recommendation and discussion based on materials received on March 11, 1980. I have reviewed the package of materials consisting of:

1) IERL's Technical and Engineering Services Contract (TESC) with Monsanto Research Corporation (MRC) (68-03-2550),

2) MRC's February 26, 1980 letter describing the interrelationship between MRC and Monsanto Company, and

3) Warren Schwartz' February 21, 1980, "Justification for the use of Monsanto Research Corporation by the Permit Writers Guidelines Task Force."

Conclusion:

The current contract has serious problems in light of Monsant Company's status as an active commenter on the proposed incinerato regulations. Some of these problems are unavoidable, but I believ that they can be minimized if we ensure, by April 1, 1980, that the following corrective actions will be taken:

Recommendations:

1) Add a standard "Organizational Conflict of Interest Clause" and a specific "Restraint on Passage of Information Clause" to this contract. Obtain a list of MRC and Monsanto personnel aware of this information. If MRC refuses to accept these we should terminate the contract on April 1, 1980;

2) Make it clear that this is a Reference Manual for permit writers and facilities; not a de facto regulation. For example, we should change the project title from "guidelines" to "guidance" and make sure that the substantive text reflects this.

3) Carry out our own technical re-evaluation of the final manual to ensure that it reflects no "tilt" caused by MRC's possible enhanced familiarity with incineration techniques used by Monsanto Company.

Discussion:

In December, 1978, EPA proposed regulations governing incineration of hazardous wastes. Monsanto Company operates a hazardous waste incinerator. It is one of the many companies that commented extensively upon the proposed regulation. The period for comment upon that regulation has now closed. EPA is currently preparing a final hazardous waste incineration regulation for promulgation this fall.

A manual is now being prepared to accompany the final regulation and to aid permit writers in their evaluations of hazardous waste incineration permit applicants. Extremely tight time pressures and a lack of in-house expertise persuaded the Agency to have this manual prepared by an outside contractor.

IERL has ongoing TESC contracts with eight consulting firms. These contracts can be used far more quickly than open-bidding or renegotiation of contracts. A skills assessment of the eight TESC contractors showed that five were unqualified in necessary areas of technical expertise and that, of the other three, MRC had the greatest technical expertise. 1/ MRC was therefore given a work

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1/ "Engineering Aalysis" was not used as a factor in this ranking. If it had been, MRC's comparative position would have been even higher.

directive for an (Est.) 8,000 hour/$320,000 effort to produce "Permit Writer Guidelines - Hazardous Waste Incineration" during the period between January 10, 1980, and April 1, 1980. MRC has already submitted an 1100 page draft version of this report to EPA. A final version is due on March 28. It is expected to be rewritten by September 1, 1980.

MRC is a wholly owned subsidiary of Monsanto Company. High Monsanto Company officers, including the Chairman of its Finance Committee, hold four of the five seats on MRC's Board of Directors. The fifth director, MRC's President, reports functionally to Monsanto Company's Vice President for Technology Development and, through him, to J.W. Hanley, Chairman-Board of Directors and Chief Excutive Officer of Monsanto Company. The manufacturing groups owned by Monsanto Company report to Mr. Hanley through separate chains of command. The existing TESC contract contains no relevant restrictions on MRC's or Monsanto Company's use of data generated from or for this project. 2/

Clearly, there is a potential for a conflict of interest in this situation. It takes two forms. Monsanto Company could benefit from advanced knowledge of incineration regulatory development; and Monsanto Company could benefit from the manual's influence on permit writer decisions. Even if this conflict is never acted upon, its mere appearance is disturbing.

The ideal solution to the problem would be to terminate this contract and to replace it with one for a manual to be created by experts who will not be members of the regulated community. 3/ This may not be practical. Most consultants with the necessary expertise are tied to members of the regulated community; other TESC contractors evaluated included, for example, Dow Chemical, also a hazardous waste incinerator. On the other hand, non-operator such as Accurex or Battelle could have performed this work under TESC; and sources other than the TESC "stable" might have been explored at the cost of a slight delay.

That decision has already been made. We are now in a situatio where MRC is about to complete a major piece of work on this projec

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2/ Art. VIII, §C requires that the Contractor protect confidential information of other companies and that it not use such information to compete with such companies. This does not cover information relevant to regulatory development and is totally irrelevant to issue of influence by MRC upon EPA's decision-making process.

3/ I have previously suggested that this could be done by the Wes Germans who prepared NATO's CCMS study on hazardous waste incinera

The start-up cost and delay of diverting the manual to another contractor would be great. If we can avoid that transfer cost by minimizing the problems with the present contract we should do so.

The danger of undue influence upon EPA can be checked if we really do have the technical capability to analyze the completed manual for "tilt" and if we ensure that permit-writers do not view this reference work as the functional equivalent of a regulation. The danger of improper advantage to Monsanto company can be checked by contractual revisions to prevent improper distribution of information. Such a contractual revision, enforcing MRC's separation from Monsanto's production and financial operations, would reduce to a tolerable level, the present appearance of, and potentiality for, impropriety. April 1 is the obvious date for this. Mike Hennessey and Rick Anderson should be able to help with this. If these corrections cannot be made, we should terminate this contract and obtain an independent assessment of the work thus far produced.

One, more general point remains. This contract allows the government to unilaterally increase the level of effort to a maximum of 60,000 hours at a rate of $401,500 for each 10,000 hour increment; a grand total cost of more than $2,400,000. Yet it does not include a standard "Organizational Conflict of Interest Clause." Even small contracts dealing with policy issues should have such a clause. When a contract of this magnitude is used for work that is directly entangled with the creation of a regulation - especially a proposed one with a closed comment period - such a provision and a review for conflict of interest should be automatic. Future work should take this into account. See E.P.A. Procurement Information Notice No. 78-23, April 20, 19 8.

cc: Eckhardt C. Beck (WH-556)
Steffen Plehn (WH-562)
Gary Dietrich (WH-562)
Jack Lehman (WH-565)
Tim Fields (WH-565)
Anne Allen (WH-565)
Lisa Friedman (A-131)
Donnell Nantkes (A-134)
Mike Hennessey - CMD Cincinnati
Rick Anderson - Grants & Contracts
Cincinnati

ATTACHMENT #3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CINCINNATI, OHIO 45268

DATE: March 21, 1980

SUBJECT: Permit Writer Guidelines for Hazardous Waste Incineration

FROM: Louis W. Lefke, Deputy Director
Municipal Environmental Research Laboratory

TO: Michael Dworkin, Attorney
Water and Solid Waste Division (A-131)

Thank you for your recent memorandum (dated May (?) 13, 1980) which raised a few questions concerning the contract associated with the preparation of the "Permit Writer Guidelines for Hazardous Waste Incineration". You indicated that Messrs. Beck and Dietrich had requested that OGC review the contract associated with this "fast track" effort.

In your Conclusion section on Page 1, there is an apparent misunderstanding about the April 1, 1980 date. By April 1, 1980, it is the intent of the agreement between ORD and OSW to deliver a DRAFT copy of a publication tentatively entitled: "Permit Writer Guidelines for Hazardous Waste Incineration". Following April 1, this publication would be reviewed by parties still (at this time) to be identified by OSW. Between April 1 and September 1, 1980, the review of this publication would take place, corrections, changes, modifications, etc., made and on September 1 the final copy of the publication is to be delivered to OSW. Based on the above, I have some concerns as to how the April 1, 1980 date enters into any potential problems. It is my belief that a September 1 date bears far more importance.

On Page 2 under side heading: "Recommendations", there are three items that I would like to address. Your first recommendation requests that a standard "Organizational Conflict of Interest Clause" be a part of the existing contract. Based on material supplied me by Mr. Michael Hennessey of the Contracts Management Division, this was done on May 8, 1979. This was not included with the information previously sent you by Mr. Hennessey. This modification to the contract is included for your information.

Recommendation #1 further requests a "Restraint on Passage of Information Clause". A proposed clause is attached and has been prepared by Mr. Richard Anderson, our OGC representative based at ERC-Cincinnati. This clause will be sent to Monsanto Research Corporation by Mr. Michael Hennessey. We do not anticipate any real or potential turndown by MRC to accept this clause.

Also in Recommendation #1, you request a "list of MRC and Monsanto personnel aware of this information". We will secure this list for our Contracts Management Division records as soon as possible. Again, we do not anticipate any difficulty in obtaining this information.

Your Recommendation #2 requests that the Permit Writer Guidelines for Hazardous Waste Incineration be defined as a reference resource for permit writers. I think the title alone satisfies your request. However, the introduction to the publication can emphasize this particular point.

Also in Recommendation #2, you would like to see the project title changed from "guidelines" to "guidance". As I indicated above, the publication is only tentatively entitled: "Permit Writer Guidelines for Hazardous Waste Incineration". The OSW has the wherewithal to use any title that it would like. Thus, I do not see any difficulties with this recommendation.

Recommendation #3 attempts to ensure that MRC's input to the Permit Writer Guidelines for Hazardous Waste Incineration is not influenced by Monsanto Company practices. I do not think this will occur because the publication has essentially been the product of EPA employees. EPA employees prepared a rather detailed outline on a chapter-by-chapter basis for the contractor. Each chapter has assigned an EPA employee as a project officer. It is my opinion that the individual EPA project officers are quite competent in their individual areas and most able to perceive any real or potential influence that might be exerted by the MRC chapter authors. By copies of this memorandum to all chapter project officers, I am specifically requesting them to be alert to this possibility.

At this point, let me state that although your memorandum is addressed specifically to concerns about Monsanto Research Corporation, there are two other firms that assisted EPA in the preparation of the documents. These are TRW, Inc. and Arthur D. Little, Inc.

Under the Discussion section on Page 2 of your memorandum, I must correct an erroneous statement. You are quite correct in citing extremely tight time pressures as an influencing factor in the decision to utilize the contract mode. However, I think it is an affront to our technical project officers to state that a "lack of inhouse expertise persuaded the Agency to have this manual prepared by an outside contractor". This was very definitely not the case. In fact, it is my personal opinion that a better quality first draft manual would have been prepared if inhouse expertise had been afforded the time to undertake this effort.

On Page 3 under Discussion, you write about a "potential" for conflict of interest. I have to readily agree with you but I think it is only that. It is my opinion that the potential for conflict of interest exists in many aspects of Agency business. It is correct for you to be concerned about the potential for conflict of interest. I can assure you that the professional people working on this effort are well aware of this, not only on this contract but in all of their duties, and I feel equally sure that they will do everything possible to prevent such an occurrence.

I have had extensive discussions with Messrs. Anderson and Hennessey and they are in agreement about the items discussed above.

I trust your concerns have been addressed and that the "potentials" that "could" occur remain just that.

If you have any further questions concerning any other items, I would be pleased to hear from you.

Louis W. Lefke

Attachments
cc: Eckhardt Beck
    Steffen Plehn
    Gary Dietrich
    Jack Lehman
    Tim Fields
    Anne Allen
    Lisa Friedman
    Donnell Nantkes
    Rick Anderson
    Mike Hennessey
    Chapter Project Officers:
        Harry Freeman
        Robert Olexsey
        Richard Carnes
        Leo Weitzman
        Dale Harmon
        Carlton Wiles
        Don Oberacker
        George Huffman
    Steven Reznek
    William Rosenkranz
    Gary Foley
    Francis Mayo
    John Burchard
    David Stephan
    Warren Schwartz

ATTACHMENT #4

CLAUSE NO. 52 Contract No. 68-03-2550 (Mod. #17)

ORGANIZATIONAL CONFLICTS OF INTEREST

(a) The Contractor warrants that, to the best of his knowledge and belief, and except as otherwise set forth in the contract, he does not have any organizational conflict of interest, as defined in paragraph (b) of this clause.

(b) The term "organizational conflict of interest" means that a relationship exists whereby an offeror or a contractor (including his chief executives, directors, proposed consultants or subcontractors) has interests which (1) may diminish his capacity to give impartial, technically sound, objective assistance and advice or may otherwise result in a biased work product or, (2) may result in an unfair competitive advantage. Such interests include, but are not limited to, present or proposed contractual arrangements with an industry to be studied, present or proposed contractual arrangements with a firm which manufactures or sells any item or substance to be studied, present or proposed manufacture or sale of any item or substance to be studied, and present or proposed manufacture or sale of any item or substance in competition with an item or substance to be studied under the proposed contract with EPA. It is not relevant that the offeror has either the reputation of being able to resist the temptation to give biased advice or the ability to resist such temptation.

(c) The Contractor agrees that, if after award he discovers an organizational conflict of interest with respect to this contract, he shall make an immediate and full disclosure in writing to the Contracting Officer which shall include a description of the action which the Contractor has taken or proposes to take to avoid, eliminate or neutralize the conflict. The Government may, however, terminate the contract for the convenience of the Government if it would be in the best interests of the Government.

(d) The Contractor agrees further that, if the award follows formally advertised solicitation and a conflict of interest was identified prior to award, he will adequately avoid, eliminate or neutralize the conflict in a manner satisfactory to the Contracting Officer.

(e) In the event that the Contractor was aware of an organizational conflict of interest anytime prior to or after the award of this contract and intentionally did not disclose the conflict to the Contracting Officer, the Government may terminate the contract for default or invoke such other remedies as may be authorized by law.

ATTACHMENT #5

ARTICLE "Restraint on Passage of Information"

The Contractor, Monsanto Research Corporation (MRC), hereby acknowledges the existence of the following potential conflict of interest:

> MRC has been performing research work for the Agency under contract 68-03-2550 which calls for the preparation of Permit Writer Guidelines for Hazardous Waste Incineration. The firm of which MRC is a wholly owned subsidiary, Monsanto Company, has offered extensive comments on hazardous waste incinerator regulations recently proposed by EPA. Monsanto Co., a large manufacturer, operates a hazardous waste incinerator and therefore could derive benefit from the pending research through MRC's influence on permit writer decisions.

MRC senior management reports to the top officials of Monsanto Co., who make up a majority of MRC's Board of Directors. In recognition of the interrelationship between MRC and Monsanto Co. and the foregoing appearance of a conflict of interest, MRC agrees to perform the subject research effort in a strictly confidential manner. Information which is used to generate reports under this contract will originate entirely within the confines of MRC and will not be transmitted beyond the bounds of such organization.

Personnel from Monsanto Co. or other affiliates who because of position or otherwise would ordinarily have access to information/data on MRC research efforts will be barred from access to data produced under EPA contract 68-03-2550. MRC will disclose research results under this contract effort only to those personnel within MRC who have a "need to know". MRC will furnish a list of such personnel to the contracting officer, who will have the final authority as to those personnel cleared for access to the research data. Disclosure of research data under contract 68-03-2550 to other than EPA officials and "cleared" MRC personnel will be permitted only on the approval of the contracting officer.

Mr. GORE. My 5 minutes are up. I would ask unanimous consent to take 1 additional minute and ask you about this deep well injection. Is it true there are 7,500 injection wells putting hazardous wastes into drinking water supplies and is it further true the regulations you have come out with do not cover that circumstance?

Mr. PLEHN. Let me state that I am not the agency official who is best qualified to talk about underground injection because that responsibility is placed in our Office of Drinking Water which has specific responsibility under the Safe Drinking Water Act for the regulation of underground injection.

The best data available to us is that there are on the order of 7,500 so-called class 4 wells. Class 4 wells include wells, pits, facilities like septic tanks, and leaching fields. There are about 7,500 that may take some hazardous wastes.

Mr. GORE. Into drinking water supplies?

Mr. PLEHN. I was going to that part of the answer. Some of those we believe may transmit those wastes directly into drinking water supplies. Others would be placing those wastes in the unsaturated zone above and perhaps separate from an underlying aquifer.

Mr. GORE. Above drinking water supplies with every expectation that it will leach eventually down into the drinking water aquifer; is that correct?

Mr. PLEHN. Probably in most cases that supposition would hold. There can be cases in which one might have an intervening layer of 100 feet of clay between the surface deposit and any underlying aquifer and there are other cases where there may be a thousand feet of ground or more where any wastes could be attentuated.

But as a general principle, what you are stating is close to the mark.

Mr. GORE. The second part of my question is: Under these regulations that you have spent 4 years coming up with, that took you 2 years past your deadline to develop, hazardous waste generator or disposer can go right on injecting the hazardous waste into drinking water supplies; is that correct?

Mr. PLEHN. Not precisely, sir. May I take just a moment to give you the background on this?

Mr. GORE. I would like to get a yes or no answer and then some elaboration.

Mr. PLEHN. The answer is that these regulations promulgate, under the authority of the Safe Drinking Water Act, a requirement that 6 months after the assumption of the underground injection program by a State, no additional class 4 wells discharging into the drinking water sources may be created and all existing wells must cease operation.

These regulations also propose under RCRA some additional requirements for underground injection wells, and we have made clear in the preamble that we may at the time those regulations become effective—in fact, we will—ban the discharge of hazardous wastes into shallow wells which discharge directly into drinking water.

Mr. GORE. Are you talking about the Safe Drinking Water Act or RCRA?

Mr. PLEHN. I talked about both.

Mr. GORE. In 1982, regulations under the Safe Drinking Water Act will affect many of these wells. Is that part of your answer?

Mr. PLEHN. No; I am saying that what the regulations say is that 6 months after a State is delegated responsibility for the operation of an underground injection program, that practice must cease. If a State chooses not to take the program or if we determine they are not capable of taking it, then the responsibility under the program lies with EPA and we would then be responsible for promulgating regulations that would have effect in that State and that ban would become effective 6 months after that.

Mr. GORE. I will pursue this later.

I will recognize Mr. Rinaldo.

Mr. RINALDO. Thank you, Mr. Chairman.

I would like to direct a number of questions to Mr. Plehn. I want to begin by making an assumption. I assume you are familiar with the fire and explosion which occurred April 21 at the Chemical Control Corp., Elizabeth, N.J., which is in my congressional district.

Mr. PLEHN. Yes.

Mr. RINALDO. To give you a little background, our subcommittee investigated the site at which more than 50,000 drums of toxic chemical waste had been stored illegally. I was certainly the first Congressman and probably one of the first officials at any level of government to visit the site. I visited it numerous times, a week ago being the last time that I was there.

The State of New Jersey had been in the process of removing drums from the site for about a year when the fire and explosion occurred 2 months ago.

My first question is, If the RCRA regulations had been in place last year, how would the Chemical Control Corp. have been affected? How would the EPA role have been affected? Would there have been greater EPA involvement in the cleanup and would this have resulted in a speedier removal of the drums?

Mr. PLEHN. I think the answer to your question, if it is posed——

Mr. RINALDO. It is more than one question.

Mr. PLEHN. Yes; if the question is whether a year ago, if these RCRA regulations had been in effect, would that have affected the situation of Chemical Control, I think the answer is no, because at that point the facility was, as I understand it, in a bankrupt status, and the State of New Jersey had custody of the facility. What would have really helped a year ago would have been if superfund was in existence, because that would have provided the immediately available authority and resources necessary to let the State of New Jersey go in and clean that situation up.

Mr. RINALDO. I know that. I am going to get to the point in a minute. I am sick and tired—absolutely disgusted with the excuses from EPA that if superfund had been in effect we would have done this and we would have done that.

People in my district, the firemen who were injured, the policemen, the people who are in the hospital, really could not care less about whether or not superfund would have been in effect. They know that New Jersey had the funds in its spill fund. They know that New Jersey had legislation that enabled it to use those funds and they know New Jersey didn't move fast enough.

I don't think there should be any denying of that by EPA. I have a stack of letters here and documents that indicate to me time and time again that throughout this entire fiasco EPA had just been defending the State of New Jersey.

I don't understand your taking this attitude. The State had adequate funds, and that can be attested to by legislators from the State, to proceed with the cleanup on a faster basis.

Let me tell you why I am so upset. In January 1978, the president and officers of Chemical Control were convicted. We knew then there was a serious problem. EPA region 2 officials visited the site and got involved about November 1978.

In March of 1979, two drums exploded. Our subcommittee was involved then and we held hearings. We sent a telegram, the chairman of the subcommittee and myself, to the Governor of the State, urging him to use those State funds for an immediate cleanup.

We started in early 1979. Back in June of 1979, we sent another telegram to the Governor: "Please speed it up: it has been labeled a chemical time bomb."

Nobody was speeding anything up. I was told these are all the workers we can allow here. It is too dangerous a site. They had about five workers there not working more than a full shift. All I was asking for all along was a few more workers from the State, and you could have had more than five at that site, working a little longer hours, maybe two shifts. I saw nothing wrong in an emergency situation with working on Saturdays and Sundays. But this action was not taken.

I got absolutly not one iota of support from EPA. In fact, EPA was taking almost the opposite point of view, that the State is doing the best it could.

Let me go on and tell you how bad the situation was. Finally, we had the big explosion on April 21, 1980. It was so bad all the schools in the city of Elizabeth were closed, many factories were closed. Everyone in the city was given a temporary warning to stay inside. A fishing ban was imposed. A number of firemen were hospitalized. A mushroom cloud of smoke rose over the area. People were concerned. Phone calls indicated some people were in a state of panic.

After the fire was over I asked EPA to investigate the cause of the fire. I said maybe now we can have a speedup. Finally, there was enough pressure, and we got more people there.

On my last visit there were about 20 workers there. I observed them carefully. They are finally doing the best possible job they could. But why did it have to take an explosion? Why did people have to end up in a hospital? Why did it take over a year to get more than a handful of workers there?

You can answer by saying, well, EPA maybe didn't have the funds and that is a legitimate answer, but the State did. If that is so, why am I upset? I will tell you why I am upset.

I received a letter from Charles Warren, the regional administrator of EPA, and when I asked him in the telegram shortly after the explosion to investigate the cause of the fire and see to it that the cleanup could be accelerated, I got this kind of crappy answer. That is how I like to characterize it.

He tells me the cleanup of the site was made difficult because of the complex nature of the cleanup operations and insufficient funds. First of all, a grammar school kid knows it is complex and, second, he doesn't have to tell me there are insufficient funds when the State still had money it wasn't using and it was my view and my contention all along that the State was dragging its feet hoping that superfund would come into existence and then the Federal Government would pick up the tab.

All along, EPA—hand in hand with the State—is going along fine. He then tells me in this letter, "As you are aware, the Congress is currently considering the superfund program." Of course I am aware of it. It was in front of our committee at the time. But he concludes by telling me he appreciates my concern and he thanks me for my interest.

That was tremendous action on his part. I thought the least I should do after that was send him another letter. I sent him a letter saying that I didn't think he really responded to my first letter.

Let me tell you what happened in the interim. A lot of Congressmen write books. I may write a book when I get out about this situation.

In the interim I was invited on May 2 by your regional office to fly over Chemical Control Corp. in a Federal Government EPA helicopter. I thought since it was in my district and there was no legislative business that day, it would be important for me to go up there. Two other members of the committee also went up to Newark. Lo and behold, there were two EPA helicopters, two secretaries from EPA—I don't know why the secretaries came along—a number of other people, there were at least two State helicopters and State police. All these helicopters were in the sky. We looked over the remains of Chemical Control Corp., then we looked over the Kin-Buc landfill and then the helicopters landed and I never knew exactly what the agenda was but then they had all the press there with TV cameras and we were going to a press conference arranged by EPA for the sole purpose of promoting superfund.

At this point I was completely committed to superfund, I was going to vote for it; I was pushing it, and doing everything possible. We didn't need that whole exercise to convince me or anybody else we needed superfund.

I sent Mr. Warren, on June 6, another letter. I told him that I appreciated everything he did and I said:

> However, I feel that the State could have accelerated the pace of the cleanup, after the initial clearance of the loft area, until all the drums were removed. A larger crew should have been utilized, and longer hours should have been kept. I feel it would have been desirable to use two shifts of workers, as well as a weekend crew, in view of the human lives at stake.

I don't think there is a single person in my district or in the State that would have disagreed with that.

I added this, I said:

> I appreciate your interest in the swift passage of strong legislation to provide Federal authority and funding for cleanup of hazardous waste sites. However, I feel your concern with the Chemical Control Corp. should be more with the immediate need for cleanup of this dangerous site and less with the use of this disastrous situation as a publicity gimmick to lobby for superfund legislation.

You don't have to tell me on a helicopter to lobby; you could have asked, am I for superfund, and I would have told him I was doing everything possible to get it passed.

Here is the beautiful response I get back:

> I am writing in response to your letter of June 6, 1980, regarding the recent fire at the Chemical Control site in Elizabeth, N.J.

Then he went on to tell me it was complex again, how difficult it was, how many drums were there, all the stuff we already knew.

> We believe that the State of New Jersey acted properly in its efforts to correct the problems at the Chemical Control site. The most dangerous materials had been removed prior to the fire and the cleanup operation was proceeding. While two shifts of workers and a weekend crew could have accelerated cleaning up the site, there was no way of predicting the incident which occurred.

Everybody from EPA, everybody from every agency that visited the site was predicting an explosion. The only thing they couldn't predict was exactly when it was going to occur.

He says:

> The cleanup effort is continuing and the cause of the fire is under investigation. As the results of that investigation become available, your office will be advised.
>
> Your continued concern and interest is appreciated.
>
> P.S. I am not interested in gimmicks but in getting about the job of cleaning up sites as quickly as possible; money and people are needed for this.

Once again, the State had the money. Second, Mr. Warren was so interested in this he didn't even look into it at that point to determine whether or not there were more workers. When he said it was proceeding in fine fashion on one shift, they were working more than one shift and they had 20 workers.

I would hope that EPA would take more of an interest instead of sending out this kind of meaningless tripe. That is the kind of letter it is and that wouldn't always protect the State in the fashion in which they did here. There isn't a single soul that I can find who is completely aware of the situation and who has visited it, who can agree in full conscience that everything possible was done to clean up the area.

It is being done now but it shouldn't have taken us 2 years with EPA, and I think they should have been a lot more responsive. I hope you agree and I appreciate any comments you may make.

Mr. GORE. The witness may respond if he wishes.

Mr. PLEHN. I want to assure the Congressman that I will make certain that Mr. Warren and, through him, the State of New Jersey, undertands your feelings on the subject.

Mr. RINALDO. I think the State understands and is now moving ahead, but I would hope Mr. Warren, in his capacity as regional administrator, would take more of an interest. I would hope you would convey my comments to him and tell him that I am darned upset at getting that kind of meaningless response to questions that I have submitted to him, particularly when human lives are at stake and people are lying in hospital beds and he doesn't even have all the facts.

Mr. GORE. The gentleman's time has expired.

I recognize on the majority side the gentleman from Massachusetts, Mr. Markey.

Mr. MARKEY. It is my understanding that the desire of RCRA is to establish a cradle-to-grave system for monitoring hazardous wastes.

It is also my understanding that the act excludes the so-called small generators of waste, those producing under 2,200 pounds per month, from the requirements.

Would you agree that 2,200 pounds of waste per month is a large amount of waste which represents a threat to health and to the environment? Especially in view of the fact that in many areas of the country, as in New England, over 50 percent of the generators are those that are by definition small generators? Isn't that a serious problem?

Mr. PLEHN. I think you have put your finger on one of the transitional issues as we attempt to move from a situation of no control and no resources to one of more complete control.

Our regulations, as you said, provide that at the outset any generator that produces less than a thousand kilograms a month is not included in the system provided that his or her wastes go to either a hazardous waste facility or to a facility which is licensed by the State.

Our regulations also commit the agency within 2 to 5 years to move that restriction to a level in the area of 100 kilograms a month. The regulations also provide that for particular acutely hazardous wastes, the levels are currently set at either 1 kilogram, 10 or 100, depending on the waste.

Mr. MARKEY. Why can't you make all of the generators subject to the more stringent requirements right now? Why do we have to wait?

Mr. PLEHN. Here is our problem. Our best data is that there are 765,000 generators of hazardous wastes in this country. Our data also indicate that 99 percent of those wastes are generated by the 9 percent of the generators that generate more than 1,000 kilograms a month.

In other words, by structuring the regulatory program as we have, we need only deal initially with 9 percent of the generators—which is still 68,000 of them—and we are catching 99 percent of the waste by doing that.

Mr. MARKEY. Wouldn't it be possible for several of these small generators to be in the same pickup group? Individually, none of them is large enough to constitute what you consider a significant problem. In the aggregate, however, as each load is picked up by a truck, finally becomes a massive chemical cocktail to be deposited at some point. The waste is exempt from the rules and regulations, and escapes the protections of the act.

Isn't that a theoretical possibility?

Mr. PLEHN. I think it probably is. Importantly, though, this exemption is conditional on those wastes going to either a hazardous waste facility or to a facility which is licensed or permitted by the State.

I am not here to say at all that EPA believes that this initial structuring of the program is ideal. We believe that waste below 1,000 kilograms should properly get included in the system but what we are trying to do is to structure a program that can work in these early stages.

I think it is relevant that the Washington Post, in its editorial on our regulations, specifically commended us on this exemption in which they say we—

> Avoided getting ourselves bogged down in the paperwork and bureaucratic nitpicking that weakened so many other health and safety programs that were rushed into action without any sense of priorities. It chose to concentrate on the 9 percent who generate 99 percent of the wastes and to leave aside, at least until the program is well established, the much larger number of small producers.

That is basically what we are trying to do. It is not that we don't want to get there. But we believe if we move to that level at that first step we would hopelessly bog down the system and jeopardize our chance of controlling the 9 percent of the generators that generate 99 percent of the wastes.

Mr. MARKEY. My problem is that this condition exists in New England and other parts of the country with small generators. To monitor it at licensed or unlicensed sites is an impossible task. To remove small generators from these regulations significantly reduces the effectiveness of this program for the New England area.

Mr. PLEHN. I have to add one other point to this. Only 11 percent of those 700,000 generators that we are exempting are in the manufacturing sector. All the others are in the service industries. Just to give you some data, 152,000 of them are painters, plumbers, and electricians. That is 22 percent; 130,000 of them are gasoline service stations; 55,000 are auto repair body and paint shops; 40,000 are dry cleaners; 21,000 are secondary schools; and 221,000 are other service industries, including barbers and beauty shops.

So we are not excluding manufacturers. Only 11 percent of these are manufacturers.

Mr. MARKEY. 11 percent?

Mr. PLEHN. That is right.

Mr. MARKEY. Why can't we include that 11 percent? Why don't we exempt the body shops but try to bring in the balance of the primary contributors to the problem? Why can't we do that?

Mr. PLEHN. We do want to do that.

Mr. MARKEY. Why don't we?

Mr. PLEHN. We have committed to doing that over time but in terms of the initial bite of the apple, we want to get 99 percent of the waste and very substantial number of people, close to 70,000 generators that generate those wastes. Do you want to add anything?

Mr. DIETRICH. No. To bring in the 11 percent, and we are going to work on that—is a definitional problem. How do we find what that 11 percent is?

Mr. MARKEY. You tell me that 1,000 kilograms is your present goal.

Mr. PLEHN. That is our general cutoff.

Mr. MARKEY. General cutoff?

Mr. PLEHN. I want to emphasize again that we have cutoffs down to 1 kilogram for acutely toxic wastes.

Mr. MARKEY. And you will reduce it to 100?

Mr. PLEHN. As a general level.

Mr. MARKEY. When will that occur?

Mr. PLEHN. We have committed to do that somewhere between 2 and 5 years from now, as rapidly as we can within that time period.

Let me also add that we are not in any way standing in the way, in fact we are encouraging States, that wish on their own authority to regulate smaller generators. There are many States which currently have advanced programs that are doing that. It is where you have a State that is just barely getting into the business that you want to be concerned about tailoring the program to a size that they can manage.

Mr. MARKEY. Thank you.

Mr. GORE. The gentleman's time has expired. We will have another round of questions. The gentleman from Illinois.

Mr. CORCORAN. Thank you, Mr. Chairman.

I am concerned about the dump siting issue. As you probably know, the GAO has taken the position that perhaps the best way to solve this problem and all of the associated difficulties that are included in it is to go on some sort of a regional basis. What is your best judgment at this point on that question?

Mr. PLEHN. Well, I think there are two ways of looking at the regional question. If you have a facility, a large offsite facility in a particular State operated by a commercial company, that facility will receive waste from a number of States round about it. So that in that sense regionalization is currently going on. Wastes presently are shipped from Maine to final disposal in California.

But we do believe that there is an opportunity and a potential for regionally creating new hazardous waste facilities. There is work underway in New England under the New England Regional Commission and we have been able to make a small grant to that group to assist them in the process. The Delaware River Basin Commission is similarly doing work on that.

In your area of the country, the Great Lakes Regional Commission is working with the States to define a role which it can play on a regional basis in dealing with the problem.

Mr. CORCORAN. Are the individual States volunteering for this assignment?

Mr. PLEHN. For the assignment of participating regionally?

Mr. CORCORAN. No, for the assignment of taking the responsibility for the siting.

Mr. PLEHN. That is a good question. We have said for 3 years that the most difficult problem that we have to solve, if we are going to bring the best technology on line to manage hazardous waste, is the siting problem, and it has been our position that State government is the level of government—to the extent that the problem cannot be solved by private industry directly—that should provide assistance.

The Administrator of EPA, Douglas Costle, addressed that in a speech to the Nation's Governors in February 1979.

We have been quite encouraged at the action that has been taking place in the States in, one, recognizing this as a real problem and, two, recognizing that the States have to deal with it.

We have five States now which have enacted some kind of siting legislation which generally takes the form of establishing a State siting board which has State level representatives and local representatives that would address the social issues relating to the siting problem, and coupling that board with some kind of State zoning authority to be able to make decisions at that level.

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These approaches involve exhaustive technical review, which is essential; they involve full publication, which is essential, and they give some promise that decisions in fact can be reached, which is the really critical point.

There are a large number of other States, including your State of Illinois, that are considering similar kinds of legislation at the present time. So whereas it is too early to judge whether these efforts will be successful, we at EPA are very encouraged that the States understand their problem and are moving to deal with it.

Mr. CORCORAN. I am happy to hear you are encouraged, but I am not and I will tell you why.

I do not know the five States in particular to which you refer, but I am certainly aware of the situation in my own State of Illinois. I think generally the impetus for this kind of legislation and the creation of these siting boards is primarily to keep the material out of State, rather than to work in a cooperative way to deal with all of the problems, technical and other problems, associated with storage.

My own particular interest at the moment is more involved in the nuclear waste management problems and I can tell you that there is just a flood of legislation in the Illinois Legislature, all designed to keep the hazardous radioactive wastes out of Illinois, or at least in the case of Illinois to prevent more from coming. So I am fearful that if we leave this to the individual States, the strategy will be primarily based on a negative strategy rather than a positive one of providing siting.

Mr. PLEHN. Well, I certainly did not mean by what I said last to mean that I thought this problem would be easily solved, because I do not.

I think that there is a growing recognition of the industries that produce the waste, of the citizens who have thought about the problem, that the waste will go somewhere and if we are going to apply the best technology and the safest practices, we have to have sites at which that is done. The five States that have taken action are Minnesota, Michigan, Connecticut, Maryland, and New York.

As I say, there are similar kinds of legislation pending. But they have not come to the test yet. There is no guarantee that they are going to work, but it is encouraging that people are attempting to deal with the problem.

Mr. CORCORAN. I am pleased with your comments. I have just one other inquiry. That is with regard to insurance.

As you know, these particular sites, some of which have been closed and others that could be developed in the future, can, and in many instances of course want to, get insurance against explosions or insurance against leaching or whatever. What is the status of the availablity of insurance for these sites at the moment.

Mr. PLEHN. We have over the last 2 years had an extensive and continuous dialog with the insurance industry about this. At the time we started this was really a very new field and there was virtually no one interested.

Rather quickly, there was interest from underwriters in this country which represent Lloyds of London, or which participate with Lloyds of London, in providing this insurance.

I have to say generally that accidental insurance—insurance against explosion or fires, things of that sort, is quite available generally for these facilities. What has been the question is, What is called nonsudden insurance, which is for damages caused by leaching from the facility? We have been quite encouraged that domestic insurance companies have been indicating an increasing interest in participating in this area. They almost without exception see their role as insuring those facilities that are permitted. In other words, they want the assurance that the facility meets the standards of the regulatory agency.

We also think their participation will be very useful because they will be additional policemen in assuring that the sites operate well. But what are generally accepted as good hazardous waste management facilities in this country presently have been able to secure and have insurance for both sudden and nonsudden accidents.

Mr. CORCORAN. Thank you, Mr. Chairman.

Mr. GORE. Mr. Plehn, a lot of your responses have been directed at what the Agency expects to do in the future to improve the regulations that are in this current phase. I have here a memorandum from an EPA attorney charged with the drafting of RCRA, the General Counsel's Office. She is commenting on the preamble to the report.

> Often the preamble directly promises we will be doing certain things in the phase II and phase III standards. Please try to give us as much leeway as possible. Say, for example, that we expect—or use something equally mushy—certain standards will be part of the phase II regulations rather than that they will be.

Now, against the background of the 4-year period that developed these regulations, and bearing in mind that we are hesitant to put too much faith in EPA's expectation that these regulations will be improved in the future, I think it is fair to focus pretty intently on the regulations that we have before us and what they accomplish and what they don't accomplish. So I want to ask you a series of detailed questions about these regulations.

I want to begin with a memorandum by the Chief of the Hazardous Wastes Implementation Branch, Mr. William Sanjour, dated June 16, 1980, and I would ask the staff to provide a copy of that memorandum to Mr. Plehn. Are you familiar with it?

Mr. PLEHN. I have seen that memorandum.

Mr. GORE. The title of it is "Impotence of Hazardous Wastes Regulations" prepared by the Chief of the Hazardous Wastes Implementation Branch. [See p. 66.]

Now, in this memo he reviewed the nine hazardous waste damage cases which were specifically cited by EPA in its arguments to Congress in favor of passing RCRA back in 1976. In other words, when the Resource Conservation and Recovery Act was pending before the Congress 4 years ago and EPA pressed its case in favor of RCRA, it formally cited nine cases of damage related to hazardous waste as evidence to support passage of this law.

Now the Chief of your Implementation Branch concludes that six of these cases—or two-thirds of them—would not have been prevented by the regulations that you have now promulgated. Can you comment on that?

Mr. PLEHN. Well, I have been away, and came back and first saw this memorandum yesterday. I think we could do one of two things. I could provide for you a detailed reaction to this memorandum or alternately we could take an initial stab at it. I know Gary Dietrich spent a little time reviewing it.

Mr. GORE. Or alternately, you could come out with some regulations that cover all nine of these cases. We can go through them one by one.

I understand your statement that you have not had sufficient time to review the memo and I am sensitive to the problems that surely poses for you. Mr. Dietrich has some additional familiarity with the memo. So maybe with him I can go through the cases.

The first case involves the spraying of waste oil with dioxin. Dioxin is not classified as hazardous waste, is it, under these regulations?

Mr. DIETRICH. Dioxin itself is not classified because dioxin itself does not exist by itself; it is typically and always an impurity in other wastes.

Mr. GORE. It does exist by itself, Mr. Dietrich, if I may presume to correct you, as a byproduct in the manufacture of 2,4,5-T; is that not correct?

Mr. DIETRICH. It is an impurity in the byproduct, yes. It is usually an impurity in commercial products or an impurity in waste.

Mr. GORE. It can exist in waste oil, correct?

Mr. DIETRICH. It can exist in waste oil if waste oil has been mixed with another waste that looks oily and does include dioxin as an impurity.

Mr. GORE. Why wouldn't dioxin be classified as hazardous waste?

Mr. DIETRICH. We have listed a number of wastes because they have dioxin in them. Some of the wood preservative wastes are, in fact, listed for that reason.

Mr. GORE. But you still haven't answered the question. Why isn't dioxin itself characterized as a hazardous waste?

Mr. DIETRICH. Because it does not exist by itself. You can't go and get——

Mr. GORE. Mr. Sanjour says that this case which involved the spraying of waste oil contaminated with dioxin would not have been taken care of by the RCRA regulations that you have promulgated.

Mr. DIETRICH. In order for that case to be taken care of, we would have to list all waste oils in the regulation.

Mr. GORE. Or alternatively, you would have to list dioxin?

Mr. DIETRICH. Not the way our regulation is set up.

Mr. GORE. Well, your regulations are not set up right, if it doesn't cover this case.

Mr. PLEHN. The point is, no one produces dioxin, nor is dioxin by itself ever produced as a waste. The only time that dioxin is created is as a contaminant in the production of other wastes which are listed.

Mr. GORE. What about kepone, kepone is not listed as a hazardous waste, is it?

Mr. PLEHN. Kepone is no longer manufactured in the United States.

Mr. DIETRICH. But it is listed, the pure product kepone would be hazardous waste if it is discarded—listed in 261.33.

Mr. GORE. I beg your pardon. It is listed as a constituent part of a compound, is that right, that is under hazardous constituents?

Mr. DIETRICH. On page 33,126 of the regulation, kepone as a commercial product is listed in column 3, second item.

Mr. GORE. All right. I was mistaken about that. I withdraw it.

Why wouldn't this case, involving the spraying of waste oil contaminated with dioxin, be covered under this regulation?

Mr. DIETRICH. In order to cover that, you would have to list all waste oil. The problem with waste oil——

Mr. GORE. What about listing waste oil contaminated with dioxin?

Mr. PLEHN. I would like to go back to a prior point. The reason that this situation occurred in Verona is that a factory which made 2,4,5-T produced a waste stream which contained dioxin. It then had that mixed with waste oil, which was then subsequently sprayed in the horse arena by——

Mr. DIETRICH. Bliss Oil Co.

Mr. PLEHN. By Bliss Oil Co.

These regulations do include the 2,4,5-T waste stream which was the original source of dioxin.

Mr. GORE. Well, the Chief of your Hazardous Waste Implementation Branch says that this case would not have been covered.

Mr. PLEHN. I think pursuant to the comments that I have just made, I believe he is in error.

Mr. GORE. Well——

Mr. PLEHN. What he is not in error in, and Gary can go into this, is the fact that waste oil is not presently covered in these regulations and will be in phase II of the regulations. We can discuss that if you like.

Mr. GORE. See, you have put the burden of proof directly on yourselves. That is why each one of these specific cases, and I want to go into the others, the six out of nine that he says would not be covered by the regulations, that is why you have such a problem with it because you put the burden of proof on yourselves.

If you find some combination or some loophole that will allow you to escape the regulations, then you have to spend a lot of time proving that it is in.

Mr. PLEHN. This regulation——

Mr. GORE. He testified that there are approximately 4,000 waste products sufficiently toxic so as to be described as hazardous. How many of those 4,000 are listed specifically? And they have to be listed specifically under the way you have proceeded. How many of the 4,000 are listed in these regulations?

Mr. DIETRICH. I do not know where he is getting his 4,000. We certainly have not listed 4,000.

Mr. GORE. No, you certainly haven't.

Mr. DIETRICH. We have listed all of the wastes for which we have sufficient data to legally defend these regulations in the court.

Mr. GORE. How many, approximately 500?

Mr. DIETRICH. We have listed 361 commercial products which are hazardous wastes if they are discarded and we have listed 85 processed waste streams. We have another 25 that should come out this month, and we will have another approximately 30 coming out in the fall of this year.

So we should have 150 processed waste streams, plus 361 commercial products. In addition to that, the characteristics of ignitability, reactivity, corrosivity, and EP toxicity will catch some unknown number of additional wastes.

Now we are not going to say here and now that we have begun to list all the wastes that ultimately have to be listed. We do have a specific program underway to try to characterize additional wastes from American industry and as that data comes in and as it indicates that a waste would be substantially hazardous to human health or environment, which is the test of the statute, we would intend to list those wastes.

Mr. Gore. Now the information I have is that folks in the EPA estimate it is going to take approximately 10 years for the Agency to proceed under these regulations to characterize and identify the hazardous wastes that should be regulated; is that an accurate estimate, 10 years?

Mr. Dietrich. I guess if you look at when we are going to get the last one on the list, yes, 10 years would be an accurate figure. I think we are going to make some large steps in the next 3 or 4 years.

Mr. Gore. I was keeping track of the numbers there. It adds up to somewhere between 450 and 500 out of the 4,000 that the Chief of the Implementation Branch says ought to be covered.

Now am I correct in stating that under these regulations EPA does assume the primary burden for determining if a waste is hazardous or not?

Mr. Deitrich. That is correct.

Mr. Plehn. Well, with a major exception. Our regulations contain four characteristics to define wastes, identify wastes which are ignitible, corrosive, reactive, or toxic with reference to the safe drinking water standards. With reference to those four criteria, the burden is on the regulated community. But with respect to organic toxic wastes, we have, for a number of reasons which we can go through with you, concluded that the opportunity for developing a characteristic is not in the real world available to us, and that the listing approach is the only course of action that will be successful.

Mr. Gore. What about infectious waste and mutagenic waste; that is, waste that either causes infections or causes damage to genes. They don't have to worry about that, do they? I mean the EPA has to assume that burden instead of the waste generator, is that right?

Mr. Dietrich. Let me take the two in order. Infectious waste was in the proposed rules. We have a little more work to do in order to get our record set up in order to adequately defend that listing. We expect to come out with a listing of infectious wastes not a great deal different from that proposed in the fall of last year. So infectious waste will be covered at that point.

Basically, what you are talking about there is hospital waste, certain waste from hospitals, veterinarian hospitals, and medical research facilities.

With regard to mutagenic, carcinogenic, and teratogenic wastes, a number of the wastes that we in fact have listed are listed for that purpose. But clearly in that area the burden is on the agency to characterize those wastes and list them for their genetic activity.

Mr. GORE. So the burden is on the agency?

Mr. DIETRICH. That is right.

Mr. GORE. Now back to the 7,500 injection wells, you said that those are not all wells that inject hazardous wastes directly into drinking water. Some of them inject wastes into areas directly above drinking water, right?

Mr. PLEHN. I am not sure inject is quite the right verb here. As I said, this includes septic tanklike facilities, it includes leaching fields, it includes pits and it includes wells which are deeper than they are wide. It is a catchall category. Injection wells, which the GAO was talking about this morning, are highly engineered, very deep facilities, of which there are approximately 400 in the country which presently manage hazardous wastes.

Mr. GORE. All right. There are 7,500 wells into which hazardous waste is either dumped or injected and of those 7,500, all directly—either directly contaminate drinking water or contaminate areas directly above drinking water, correct?

Mr. PLEHN. The only thing I quarrel with is the last four words. Some of them place waste directly in the earth, which may be isolated—may be isolated from drinking water.

Mr. GORE. How many of the 7,500 wells are directly connected to drinking water supplies.

Mr. PLEHN. I do not believe we know the answer to that question.

Mr. GORE. Now in the regulations—let me just ask you, can you think of any worse way to dispose of hazardous wastes?

Mr. PLEHN. No, it is a bad practice which should be phased out.

Mr. GORE. Why wouldn't you cover that in the RCRA regulations?

Mr. PLEHN. The reason we didn't cover it is because the Agency's intention until not very many months ago was that, pursuant to the act of Congress which specifically established a regulatory framework for the regulation of underground injection, that regulatoin should be handled under the authority of the Safe Drinking Water Act. We so proposed the regulations in April and June of 1979. We asked for public comment on the question—the reason we did that was in part because of the specific congressional directive and in part because we felt——

Mr. GORE. What specific directive?

Mr. PLEHN. The directive of the Safe Drinking Water Act.

Mr. GORE. Back in 1974 the Congress passed the Safe Drinking Water Act.

Mr. PLEHN. As I said, I am not responsible for that program. That date sounds like it is about right. What we wanted to do was to not subject, unless it was imperative that we do so, the operators of those facilities to dual jurisdiction under two pieces of legislation. We asked for public comment on that question when we proposed those regulations in April and June of last year.

The public came back to us and said, for some of the reasons that you are really getting at here, we think that dual jurisdiction is not such a bad idea and, as a result of those comments, we have both promulgated and proposed regulations with respect to class 4 wells and class 1 wells in this package which we issued on May 19.

Mr. GORE. I am not quite sure I understand that answer. The regulations under the Resource Conservation and Recovery Act do not cover the injection or dumping of hazardous wastes in a well that is directly connected to drinking water supplies.

The answer to that question is yes, isn't it?

Mr. PLEHN. No. This is what has been promulgated under the RCRA regulations. Any facility, whether a class 1 or a class 4 well which receives hazardous wastes, must notify EPA and must participate in all of the interim status standards excepting groundwater monitoring, closure, and postclosure.

Mr. GORE. These are the housekeeping standards?

Mr. PLEHN. That is correct. We have proposed under RCRA in this May 19 package additional housekeeping standards, complementary interim status standards for those wells.

We have also indicated in the preamble that we intend to take action under RCRA authority to eliminate the direct injection of wastes into aquifers under RCRA authority.

This package, under the Safe Drinking Water Act, promulgates a requirement that says within 6 months after a State assumes operation of the underground injection program, under that act, that practice must terminate.

Mr. GORE. You put it in the preamble and this is the same preamble that was designed purposely to be "mushy, so as to give us as much leeway as possible."

Let me rephrase what you said and you tell me if you disagree. Under the Safe Drinking Water Act the practice of dumping hazardous wastes directly into drinking water supplies by way of a well may be banned in 1982, hopefully, if and after States have adopted underground injection control programs, but until that indeterminate point in the future, this practice of dumping hazardous wastes directly into drinking water is covered or could be covered by RCRA, but in implementing RCRA with these regulations you have specifically decided not to cover that practice in the regulations that we have now promulgated.

Mr. PLEHN. I have to amend your statement in two respects.

The first point is, under the Safe Drinking Water Act promulgated, this practice must be ended 6 months after a State assumes responsibility for the underground injection and that could, pursuant to statute, occur within a very few months.

Mr. GORE. What if States show the same kind of delay that EPA has shown in implementing these regulations and they don't get around to adopting a State underground injection control program?

At that point they can ask for additional time, there is no definite point at which your jurisdiction or the Federal jurisdiction kicks in; right?

Mr. PLEHN. No. My knowledge is somewhat secondhand but, the Safe Drinking Water Act says the States must take action to achieve or not achieve delegation within 9 months. It then contains a section that says provided they are making good faith efforts they can have an additional 9 months. If they fail to successfully complete action within 18 months—this is a statutory requirement—EPA is required to develop a program within that State and operate the program in that State.

With respect to the RCRA regulations, the reason why the RCRA regulations at this point do not contain a promulgated ban on the direct injection of hazardous wastes into aquifers——

Mr. GORE. Into drinking water.

Mr. PLEHN [continuing]. Into aquifers, is because we have not proposed that requirement and we cannot promulgate it without giving the public the opportunity to comment. That is the rule we must operate under.

Mr. GORE. Why didn't you propose it then?

Mr. PLEHN. The reason we did not propose it is because we had intended to undertake our regulation of underground injection consistently and solely under the authority of the underground injection program.

Mr. GORE. You mean the Safe Drinking Water Act?

Mr. PLEHN. Yes.

Mr. GORE. Once again, the industry has gotten the benefit of the doubt here and people who are drinking that water that has hazardous waste dumped directly into it are going to be unprotected for at least another 2 years.

Mr. PLEHN. No, sir. We could take action under RCRA in less than a year—effective action. We can take action within 6 months. However, anything we promulgate does not take effect for 6 months, that is statutory; so there would be that additional 6 months period.

Mr. GORE. Can you give me a commitment on the record that you will do that—not one of these mushy statements that your lawyers have advised you in the preamble? Can you give me a commitment within 6 months you will stop the dumping of hazardous wastes directly into drinking water?

Mr. PLEHN. I believe I can give you, to the extent I am able to do that, a commitment that we will promulgate a regulation under RCRA that will have that effect within 6 months.

Mr. GORE. Good. Maybe we have accomplished something today.

Let's talk about waste oil for a minute. Isn't it true many hazardous waste generators commingle their wastes with oil? A typical operation includes a sump pump system in which waste discharged and oil are mixed and pumped out. In fact, one of your central arguments with respect to the superfund in your proposal to combine oil and hazardous wastes is the frequency of discharging contamination problems involving oil and hazardous waste mixtures?

Is it correct that is a common occurrence?

Mr. DIETRICH. I think that is one of the problems with waste oil; it tends to get other things mixed into it. It starts at the gas station where he throws a little degreaser or a little bit of solvent in it.

The second occurs with a collector who may collect that from four or five gas stations and an industrial plant and gets some transformer oil with PCB's put in it. It may occur at the storage facility of the collector where, again, mixing can occur.

If it were not for mixing, the waste oil problem would be much easier to deal with. By virtue of the fact it is mixed we almost have to presume that all waste oil is hazardous.

Mr. GORE. Or else attempt to deal with it according to some determination of its waste content, yet you have excluded all waste oil arbitrarily.

Mr. DIETRICH. We have deferred promulgation of waste oil. We intend to do that in the fall.

Mr. GORE. Can you give me a commitment on the record that you will promulgate a regulation on waste oil in the fall?

Mr. DIETRICH. As much as I can cause that to happen, yes, we will.

Mr. GORE. Mr. Plehn?

Mr. PLEHN. All I can do is give the same answer.

Mr. GORE. Could you restate it?

Mr. PLEHN. To the extent that I have the ability to meet that commitment, yes, I will give you that commitment.

Mr. GORE. All right.

How many sites will receive interim status standards in November?

Mr. PLEHN. The requirement for interim status is a statutory requirement which the Congress placed in the law in recognition of the fact that they needed some way to move into this program over time and that they did not want to have all existing facilities out of compliance with the act.

Mr. GORE. That is correct; but we also left it up to you—perhaps we have left too much up to you—to come up with design and performance standards under interim status.

My question is, How many—26,000 to 30,000? How long do you expect to take to review all the final permit applications?

Mr. PLEHN. That depends upon a number of things. It depends, first, on the number of States which successfully achieve interim authorization under the act. To the extent that they do that, then the permitting responsibility will fall on them.

EPA's ability to permit will depend then on the number of States in which we are operating the program and the resources we have available to do that task and the amount of time it will take to undertake each permit. All of those are unknowns.

Our intention is as a matter of first priority to concentrate on those facilities where wastes are being badly managed so that we can go in and close those facilities out by denying them a permit, and to concentrate on permitting new facilities and the best facilities so that their title to operate in this business is clear.

We have estimated at various times—again, based on assumptions on how many States, what resources, and how long it is going to take for the permit—that to complete the total task could take us 5 years, and maybe a year or two beyond that. But we are guessing when we say that because of our uncertainty about these assumptions.

Mr. GORE. The estimate I was given was 5 to 8 years.

Mr. PLEHN. I believe we have testified along that line. I will tell you the assumptions when we calculated that. That was based on 35 States taking the program which means that EPA would have responsibility for 23 States and territories. It was based on some rough estimates of the amount of time it would take to permit and on the resources requested by the President in the 1981 budget.

Mr. Gore. Let's go back to the list of six of the nine wast
damage cases that EPA cited to justify passage of RCRA. Six o
them are not covered. We covered the first one.

The second case involves a drinking water well contaminated b
arsenic trioxide which is also not listed as a hazardous waste. Wha
about that, Mr. Dietrich?

Mr. Dietrich. Arsenic trioxide is listed.

Mr. Gore. Not as a hazardous waste. Again, it is a hazardou
constitutent, right?

Mr. Dietrich. Well, it is hard to know exactly what took place i
this damage case that is cited, but the presumption is that th
pesticide, arsenic trioxide, was mixed with some other wastes an
buried.

If in fact that was the case, arsenic trioxide, if discarded, is
hazardous waste. So if the situation was that the waste bein
discarded was the pesticide product arsenic trioxide, yes, it wou
be covered.

Mr. Gore. The quantity disclosed in this case was less than 1,0
kilograms.

Mr. Dietrich. Our rule on 1,000 kilograms does not apply. On
kilogram applies to arsenic trioxide because it is listed in sectio
261.33.

Mr. Gore. The Chief of the Hazardous Wastes Implementatio
Branch, after reviewing these regulations, has come to the concl
sion that this case would not be covered.

Mr. Dietrich. I am sorry. I think he is wrong.

Mr. Gore. That is your answer then?

Mr. Dietrich. You can see on page 33,124 in the third colum
arsenic trioxide plus three generic formulations and three bra
names are in fact listed.

Mr. Gore. As a hazardous constituent?

Mr. Dietrich. As a commercial product; if discarded as a hazar
ous waste, the 1 kilogram limit applies to that particular wast

Mr. Gore. Maybe he is wrong. We will have that conflict on t
record.

The third case he cites involves pesticide and herbicide wast
which leaked from an unlined holding pond and contaminated
shallow aquifer. The regulations require site inspections a
groundwater monitoring but no remedial action is required und
the surface impoundment section of RCRA.

Also, subpart D of the regulations—the emergency response p
visions—omit releases to groundwater.

Mr. Plehn. I would like to go back to the other case because t
paragraph in the beginning of the second page leaves this implic
tion that——

Mr. Gore. Second page of what?

Mr. Plehn. The second page of Mr. Sanjour's memorandum.
leaves the implication that because the damage incident occurr
40 years after disposal that the requirements in our regulation
groundwater monitoring would be ineffective, would not have
tected the damage. I believe that is not an accurate conclusi

Arsenic would have moved, I am advised, much more rapi
than that, and its movement would have to be detected by

groundwater monitoring program that we are requiring during the period of operation and for 30 years thereafter.

Mr. **Gore**. What if it was detected? The regulations don't require them to do anything about it. Hopefully, they would if they detected it but hope hasn't gotten us anywhere.

Mr. **Plehn**. The regulation requires them to notify us of the fact, requires them to implement a much more extensive groundwater assessment program in order to determine what the situation is at the site, it requires them to report that to us. We have no authority under the statute to then say, go do something about it. That was not given to us as authority by the Congress.

We do have two points of action we can take. We can take action under 7003 to seek injunctive relief in the case of imminent hazard or we can take action under the permitting procedures to withdraw the permit.

Those are the only two avenues of action available to us.

We would have the authority to notify anyone who might be affected by that leakage. We would have authority to take moral and other kinds of leadership to induce the owner to abate the problem. But as a strictly legal matter, we do not have that authority.

Mr. **Gore**. Maybe we need to clarify that authority in the legislation.

The fourth example cites an incident in which various liquid wastes were disposed of in an unlined sandpit. Consequently, ground and surface waters, including 26 drinking wells, were contaminated. Disposal into unlined sandpits is not prohibited under the interim standards. Is that correct?

Mr. **Dietrich**. That is correct.

Mr. **Gore**. So you can continue to pour liquid wastes into unlined sandpits?

Mr. **Plehn**. Putting that more precisely, the design standards for landfills and, therefore, the standard against which that kind of practice would be curtailed, will appear in phase II of the regulations.

Mr. **Gore**. Will appear in phase II. Aren't 90 percent of all waste liquids?

Mr. **Plehn**. I don't believe so, sir.

Mr. **Gore**. What percentage figure do you have on that?

Mr. **Plehn**. I would have to get that for you.

Mr. **Gore**. That is EPA's figure—90 percent. I will leave the record open at this point for your correction if you wish, but that would seem to be a major oversight.

Mr. Dietrich, you wanted to respond?

Mr. **Dietrich**. First of all, this so-called unlined sandpit, if it notifies and gets interim standards and we apply standards, you are correct that the standards do not reuqire the person to line that pit nor to cease operation. If in fact the case is as bad as was cited in this example, I think our action would be as Mr. Plehn has indicated. We would either take the permit expeditiously with the intent of upgrading that facility or denying the permit.

Mr. **Gore**. You can't take all of them up expeditiously. There are thousands of them.

Mr. **Dietrich**. I am not sure one could characterize all the sites out there as unlined sandpits.

Mr. **Gore**. I am not characterizing all of them as that. We don't have the kind of information that we ought to have on them. That hasn't been gathered yet.

Mr. **Dietrich**. But you see, our first priorities will be to take the worst first. If in fact you have unlined sandpits, the presumption being that wastes can migrate very rapidly into the groundwater without much attenuation, we want to get at those and we will through the permit process or through 7003 actions.

Mr. **Gore**. Are you familiar with the surface impoundment study?

Mr. **Dietrich**. I am familiar with it to some extent.

Mr. **Gore**. What did you find in that with respect to this problem?

Mr. **Dietrich**. I don't recall the statistics but there are a lot of surface impoundment pits that are leaking.

Mr. **Gore**. I don't understand why the regulations wouldn't cover that.

Mr. **Dietrich**. The regulations do cover it. We are going to go through a permitting process. The law does not provide us with the authority to ban sandpits. We couldn't sustain that in any sort of legal challenge.

Mr. **Gore**. Or ban dumping into unlined sandpits.

Mr. **Dietrich**. That is right. You couldn't make that presumption and get away with it. You have to take it up on a case-by-case basis where you provide due process in determining whether in fact there is a case there to ban it.

Mr. **Gore**. I can't believe you can't come up with standards that would offer more protection.

Mr. **Plehn**. We will. But I think the point Mr. Dietrich is making, as the statute is structured, those standards must be applied through the permitting process providing due process for the affected party. We have no other alternative open to us.

Mr. **Gore**. The surface impoundment assessment study that I referred to a moment ago identified at least 1,740 sites, pits, ponds, and lagoons that are unlined and overly permeable soil and are above usable aquifers.

How will the RCRA interim status regulations resolve the problems at these sites? The answer is—and I will give you a chance to correct it—the regulations will not adequately remedy these problems, although it requires groundwater monitoring, it does not provide any remedy or minimum performance standard.

Mr. **Plehn**. I think that is accurate. I think we will know where they are because they will notify us. We will get an application which will give us some information about the facility on which we can judge relative priorities and it will require the installation of a groundwater monitoring system which will determine whether there is leakage occurring.

Mr. **Gore**. A final example cited by Mr. Sanjour discusses damage to a 100-square-mile area in Louisiana due to volatilizing wastes. RCRA does not regulate gaseous emissions, including volatilization, at hazardous waste sites and facilities; is that correct?

Mr. **Dietrich**. That is correct. That is one of the greatest frustrations. We have not been able to deal with volatile wastes. We did propose to list some wastes on the basis they were volatile. We based that on the vapor pressure of the wastes. We got tons of comments that indicated that vapor pressure was only one of the factors that determine whether you have a problem. There are many other factors that determine whether a waste is hazardous by virtue of being volatile.

We have just been unable to come up with a formula that would separate those wastes that should be controlled because of volatilization from those that are not. All wastes volatize in some degree, so it is not a job of picking out those that volatize from those that do not; it is a job of picking out those that volatize in sufficient amounts and that is a very complex physical chemical operation and we have not been able to come up with a device to separate those two groups of wastes. It is something we very much want to deal with.

Mr. **Gore**. Let me summarize that part of the question by saying this fellow believes six of the nine cases would not be covered under these regulations. You have disagreed strongly with his analysis with respect to some of those cases, but not with respect to others. It is at the least ironic that many of the sites that were used as evidence to support passage of RCRA by the agency will not be covered by the regulations that have been promulgated either at one time or another time that irony was created.

Mr. **Plehn**. Obviously, this is a matter of concern to the extent to which this is true and will want to advise you of wastes which this may or may not be accurate. We will supply that for the record.

Mr. **Gore**. Without objection, we will hold the record open for that information.

[Testimony resumes on p. 105.]

[The memorandum referred to and EPA's assessment thereof follow:]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE June 16, 1980

SUBJECT Impotence of Hazardous Waste Regulations

FROM William Sanjour, Chief
Hazardous Waste Implementation Branch (WH-563)

TO John H. Skinner, Director
State Programs & Resource Recovery Division (WH-563)

Between 1975 and 1976, EPA published three hazardous waste disposal damage reports which illustrated the problems arising from the disposal of hazardous wastes in the United States. These studies were used by EPA to point out the need for the regulation of hazardous waste. Congress responded with the Resource Conservation and Recovery Act (RCRA) of 1976, and the legislative history of that Act contains many references to these cases. Since EPA has just published regulations under RCRA (May 19, 1980), I have gone back to these old case studies to see how well these regulations handle them.

I am sorry to report that of the nine damage cases studied, at least six of them would not have been prevented by these regulations. The following is an analysis of those incidents to which the regulations would not have applied.

1. Dioxin Poisoning

There are no provisions in the regulations either prohibiting or controlling the spraying of hazardous waste as a dust supressant. Thus, the spraying of Missouri horse arenas with dioxin-contaminated waste oil would not have been prevented. See attachment 1 from EPA Publication SW-151.2, December 1975. Waste oil is not currently listed as a hazardous waste by EPA, nor is dioxin a regulated hazardous waste under Subparts C and D of Part 261. (It is listed in Appendix VIII to Part 261, but that is only a list of potentially regulated wastes and does not apply here. Other possibilities are that it might have been regulated as 2,4,5-T but this is not certain.)

2. Arsenic Poisioning

Nothing in the regulations would have prevented the contamination of a Perham, Minnesota drinking water well with arsenic. See attachment 2 from EPA Publication SW-151, June 1975. The waste involved, a grasshopper bait composed of arsenic trioxide as well as other non-hazardous substances, is not listed as a hazardous waste, although it probably would be an EP toxic, since 21 ppm of arsenic was found in the drinking water. Nevertheless the waste would probably not have been regulated because its quantity was less than 1000 kg. However if we assume the waste was regulated and the landfill complied with all RCRA regulations, the incident still would have occurred.

Subpart G of Part 265 requires post-closure care, including groundwater monitoring, for a period of thirty years. (The Regional Administrator may require longer maintenance and monitoring but only if it is necessary to protect human or the environment; unless the site had been leaking and the leak had been detected, the longer monitoring would not have been required.) The damage incident occurred forty years after disposal.

Subpart G also contains provisions for post-closure use of the property and provides for a notice in the deed to the property that the land had been used for hazardous waste disposal. However, these provisions do not apply to use of adjacent property or protection of adjacent property owners after the post-closure period. Therefore, the regulations might have diminished the concentration of arsenic in the water, but they would not have prevented the post-closure drilling of a drinking water well on adjacent property, and subsequent contamination of that well.

3. Army Chemical Warfare Wastes

Contamination of the shallow groundwater aquifer underlying Rocky Mountain Arsenal might also have occurred despite the regulations. See attachment 3 from EPA Publication SW-151.2, December 1975. It is unclear from the report what type of chemical warfare manufacturing wastes were generated by the Army Chemical Corps., and it is not obvious from the regulations that chemical warfare wastes are included in the hazardous waste lists. Since the wastes were contained in unlined holding ponds, the Army and Shell Chemical Co. would have been required to inspect for and to remedy any deterioration of the impoundment. Regs. §§265.226, 265.15(c). However, it is not clear whether they would be required to clean up or otherwise render harmless the wastes leaking into the aquifer.

Section 265.15(c) provides that "[w]here a hazard is imminent or has already occurred, remedial action must be taken immediately." This provision is vague as to the types of situations to which it applies and to the types of remedial actions required. As noted above, since the surface impoundment inspection section contains a specific reference to §265.15(c), deterioration of the physical impoundment must be remedied. By contrast, no section of Subpart F, Groundwater Monitoring, contains a cross-reference to §265.15(c).

Nor does Subpart F itself contain any provisions for remedial action other than implementation of a "groundwater quality assessment program" via a site-specific plan. Regs. §265.93.[*] The implementation of the plan is to continue until closure of the impoundment, but closure is neither a suggested nor a mandatory remedy. No provision is made for supplying affected persons with alternate sources of drinking water. Finally, the Subpart D contingency plan for release of hazardous wastes to the environment conspicuously omits releases to groundwater.

4. Destruction of Water Supply

Since the regulations do not now provide for closure and post-closure trust funds or for performance surety bonds, there is no assurance that money would be available to remedy groundwater contamination if such action is in fact required. Monetary costs associated with contamination of an aquifer are high; for example, over $400,000 in direct costs were accrued when the state of New Jersey discovered that the Cohansey Aquifer had been contaminated by hazardous wastes dumped on farmland. See attachment 4 from EPA Publication SW-151-3, June 1976. This applies to Rocky Mountain Arsenal as well. In effect, then, the regulations will not prevent this type of groundwater contamination situation.

5. Chemical Industrial Waste Dumping

There are also no provisions in the regulations which would have prevented the dumping of hazardous wastes into a sand pit in Crosby, Texas. See attachment 5 from EPA Publication SW-151.2, December 1975. Of the wastes involved -- from oil refineries, petrochemical, chemical, and other industries -- some are included in the regulations, such as steel mill pickling liquor, and some are not. If the wastes had been disposed of in a landfill, the §265.314 requirements for landfilled liquid wastes would have applied. The Subpart K requirements applicable to the situation do not contain special provisions for liquid wastes, for soil types and porosity, for impoundment liners, or for other special containerization of the liquids. Disposal into an unlined sand pit is not prohibited. Groundwater monitoring may or may not have detected contamination of the underlying aquifer, but groundwater monitoring is not required for another year and as discussed above, the regulations do not adequately provide for remedial action in such a situation.

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[*] Implementation of the plan is triggered by a finding of significant increases in levels of contaminants using the student's T test; the test, however, because it is designed to eliminate false positives might never have triggered the plan.

6. Volatile Waste

Another damage-causing problem not currently addressed by the regulations is volatilizing wastes. Volatilization of landfilled hexachlorobenzene wastes in Louisiana led to expenditures of over $380,000 and delayed marketing of 30,000 head of contaminated cattle. See attachment 6 from EPA Publication SW-151.3, June 1976. The regulations require safeguards against wind dispersal of contaminants but not against volatilization. Regs. §265.302(d); 45 Fed.Reg. 33,204 (May 19, 1980). Thus, the regulations would not have prevented this damage incident, either.

In conclusion, many of the damage cases which were used by EPA to justify passage of RCRA would not have been prevented if the regulations recently promulgated to implement RCRA had been in effect at the time. In some of the cases, the wastes themselves are not regulated. In others, the wastes are regulated, but the method of disposal is not regulated or is not regulated in such a way as to prevent the release of the hazardous wastes. And in still other cases, especially the groundwater situations, the failure of the regulations to mandate remedial action ensures that the damage will not be prevented.

Attachments

cc: Steff Plehn

Attachment 1

HAZARDOUS WASTE DISPOSAL
DAMAGE REPORT

January 1976

Dioxin Poisoning
Caused by Improper Waste Disposal in Missouri

1. Personal Damage - Toxic illness of varying degrees affecting ten persons. The worst illness occurred in a six-year-old girl who suffered an inflammatory reaction of the kidney and bladder bleeding, requiring hospitalization and surgery. Less severely affected persons developed diarrhea, headaches, nausea, polyarthralgias, and persistent skin lesions.

2. Environmental Damage - Contamination of the soil with an extremely toxic substance in three horse arenas and a farm road. The death of six dogs and twelve cats, and the destruction of a large number of birds and insects.

3. Economic Damage - The death of at least 63 Appaloosa and quarter horses, which resulted in loss of business and subsequent sale of one of the horse arenas. Also, medical expenses and cleanup costs. The estimated total financial loss, based on filed lawsuits (excluding punitive damages), is close to $500,000.

4. Cause of Problem - Contact with soil containing 2,3,7,8-tetrachlorodibenzodioxin (TCDD, commonly referred to as dioxin), a contaminant in the waste oil which was sprayed in three horse arenas and a farm road as a dust control measure.

5. Type and Quantity of Hazardous Waste - Approximately 4,000 to 5,000 gallons of waste oil containing about 300 ppm dioxin was sprayed on the affected areas.

6. Source of Waste - The waste oil was obtained by Bliss Waste Oil Co. from North Eastern Pharmaceutical and Chemical Co., where industrial waste residues from hexachlorophene production were kept in a storage tank.

7. Date of Incident - The dioxin-contaminated waste oil was sprayed on three horse arenas and a farm road in May and June 1971. Birds died within three days and

the first horse within four weeks of the spraying. Horses exposed to the contaminated arena soil in May and June 1971 continued to die as late as January 1974.

8. Location - Near the towns of Moscow Mills, Fenton, New Bloomfield, and St. James, Missouri.

9. Status - Remaining 4,600 gallons of dioxin-contaminated distillate residues are in an industrial storage tank. State and Federal officials are actively seeking a safe disposal method for the material.

10. Remedial Action Taken - The contaminated soil was excavated during the period from October 1971 to August 1974 and graded under a new concrete highway, dumped at a sanitary landfill, and in one case (before the identification of dioxin) used as residential landfill.

11. Legal Action Taken - Two law suits, for a total of $954,000 in compensatory and punitive damages, have been filed by the former owners of one of the horse arenas against Bliss Waste Oil Co., North Eastern Pharmaceutical Co., and Independent Petrochemical Corp. Also, a lawsuit for $50,000 has been filed by several horse owners against one of the other two horse arenas.

12. Narrative - In August 1971, a six-year-old girl was admitted to a Missouri children's hospital with severe bladder pain, urinary urgency, and inability to pass urine. She was listless, had been bleeding from the nose, and had diarrhea and a headache. Over a period of several hours she gradually was able to void in small amounts, but her urine was grossly bloody. Her case was diagnosed as acute hemorrhagic cystitis with signs of focal pyelonephritis.

A significant clue in this case was that the child lived on a farm where many animals had recently died. Following the spraying of the farm's horse arena in late May with waste oil for dust control, numerous birds, cats, dogs, and horses developed a mysterious fatal illness. The child was known to have played frequently in the soil of the horse arena during the summer, as in a sand box.

Analysis of soil samples taken from the arena initially identified a complex mixture of organic compounds, including trichlorophenol and polychlorinated biphenyls. The toxic agent responsible for the outbreak of poisonings was ultimately identified as dioxin, one of the most toxic chemicals known. Based on animal studies, both the oral and the dermal lethal dose for humans have been established in the range of micrograms per kilogram body weight.

Dioxin is a by-product from the manufacture of the herbicide 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) and related compounds. The Hoffman-Taff Company's production of 2,4,5-T in Verona, Missouri, was terminated in February 1969. The company was subsequently acquired by Syntex Agribusiness, Inc. The new owners of the manufacturing facility sold the equipment and leased the plant space to the North Eastern Pharmaceutical and Chemical Co. (NEPACCO) which produced trichlorophenol as an intermediate for the manufacture of hexachlorophene. The toxic by-product dioxin is also formed in the manufacture of trichlorophenol. The residues containing a high concentration of dioxin were emptied for about 1 1/2 years into a large storage tank on the site.

Periodically, the residues were hauled away by a disposal company to Louisiana for incineration. In 1971, NEPACCO contracted with Independent Petrochemical Corp. (IPC) of St. Louis for $4,625 to dispose of the residues. Not actually equipped to handle waste disposal, IPC subcontracted with the Bliss Waste Oil Co. to remove the material. The company is owned and operated by Russell Bliss, who deals in waste oil, lubricants, organic solvents, and transformer oils generated by automobile service stations and industrial sources. For many years, Mr. Bliss has been spraying the nonrefinable grades of waste oils on horse arenas as a means of dust control.

From February to October 1971, the Bliss Waste Oil Co. transferred six truckloads (approximately 18,000 gallons) of industrial residues containing about 300 ppm dioxin from NEPACCO's storage tank in Verona to its own storage tanks in eastern Missouri. Mr. Bliss received no payment from IPC but was paid by the horse arena owners where he sprayed the oil. Three horse arenas and a farm road on Mr. Bliss' own property are known to have received the dioxin-contaminated oil. The dioxin concentration of the soil in the most seriously affected horse arena was analyzed at about 30 ppm. The overall toll in the four disposal areas can be summarized as follows: ten persons developed toxic symptoms (two children became seriously ill), and at least 63 horses died along with 6 dogs, 12 cats, 70 chickens, hundreds of birds, and numerous rodents and insects. In addition, there were 26 known abortions and 6 birth abnormalities among the horses. The toxicological as well as other aspects of this case have been well documented.[2,3]

NEPACCO went out of business in December 1971. The Verona manufacturing facilities reverted to Syntex Agribusiness, Inc., which disclaims all legal responsibility for the inherited 4,600 gallons of toxic residues in the industrial storage tank. Syntex has expressed willingness, however, to pay for the safe disposal of the wastes. Several alternative disposal methods have been considered, including incineration at sea.

Attachment 2

HAZARDOUS WASTE DISPOSAL
DAMAGE REPORT

March 7, 1975

Arsenic Poisoning in Minnesota

1. Personal Damage - Eleven persons developed arsenic poisoning. Two required hospitalization and treatment.
2. Environmental Damage - Contamination of the soil and groundwater
3. Economic Damage - Discontinued usage of contaminated well. Installation of public water supply cost approximately $3,000. Removal and safe disposal of contaminated soil is estimated at $25,000.
4. Cause of Problem - Subsurface migration of arsenic compound.
5. Type and Quantity of Hazardous Waste Involved - Grasshopper bait, consisting of arsenic trioxide, bran, sawdust, and molasses. Total quantity disposed estimated at less than 50 pounds.
6. Source of Waste - Local farmers
7. Date of Incident - Burial of grasshopper bait estimated between 1934 and 1936. First case of illness reported in May 1972, with other cases following during the next 10 weeks.
8. Location - EPA Region V, Minnesota, Perham
9. Status - Problem of how to deal with contaminated soil still requires resolution. Samples from 12 nearby wells are being analyzed at six-month intervals by the State Health Department.
10. Remedial Action Taken - The well has been capped. Cost considerations have prevented permanent correction of the situation at this time.
11. Legal Action Taken - None
12. Remarks - In May 1972, a local building contractor occupied a new office and warehouse structure at the outskirts of Perham, a town of 1900 residents in western Minnesota. At that time, a well was drilled to supply drinking water for about 13 people who worked on the premises.

Early in May, five employees became ill with gastrointestinal symptoms. Following this, and continuing throughout the next 10 weeks, other employees also became ill. Arsenic poisoning was determined to be the cause, which affected a total of 11 out of 13 persons exposed to the water. Two required hospitalization and treatment. One of the victims lost the use of his legs for about six months due to severe neuropathy. The medical aspects of this groundwater contamination incident have been well documented by Dr. E. J. Feinglass.[2]

Chemical analysis of samples taken from the affected well established arsenic concentrations of up to 21,000 ppb. (The U.S. Public Health Service drinking water standard for arsenic is 50 ppb.) As Dr. Feinglass pointed out in his article, the particularly serious consequences of chronic arsenic poisoning were probably avoided in this instance because of the extremely high concentration of arsenic in the drinking water. The acute course of the illness allowed early recognition of the problem.

The source of the well water contamination has been traced back to the mid-1930's, at which time grasshoppers had constituted a serious problem to farmers in the area. Some old-timers recall that excess grasshopper bait had been buried at the former County Fairgrounds, in a corner which was used as the village dump in those days. That area is now directly adjacent to the new facilities of the building contractor whose well became contaminated.

The exact area of disposal was located approximately 20 feet from the well. The well is 31 feet deep and the arsenic trioxide was buried at a depth of about 7 feet. Analysis of soil samples established a maximum arsenic concentration of 40% at the spot where a white crystalline material was found. The Minnesota Department of Agriculture has estimated that less than 50 pounds of grasshopper bait was disposed in the trench about 40 years ago.

Several options have been proposed for solving the problem. These include the following: (a) removal of approximately 2,000 cubic yards of contaminated soil to sealed vaults; (b) chemical fixation of the soil; and (c) covering the area with asphalt to retard further leaching of arsenic into the groundwater. The estimated costs of these solutions range from $25,000 to $2,500. Due to budgetary considerations, the problem has not yet been resolved. There are current plans to install a monitoring well in the immediate vicinity in the direction of the estimated groundwater flow.

Attachment 3

HAZARDOUS WASTE DISPOSAL
DAMAGE REPORT

January 1976

Contamination of Groundwater Beneath the Rocky Mountain Arsenal and Surrounding Area

1. Personal Damage - None

2. Environmental Damage - Contamination of 30 square miles of a shallow water table aquifer. Contamination of soil by toxic substances (aldrin and dieldrin) in the vicinity of a formerly used unlined holding pond. Mild earthquakes in the vicinity of the Arsenal. Occasional waterfowl kills.

3. Economic Damage - Contamination and temporary abandonment of 64 domestic, stock, and irrigation wells. Damage to crops on 6 1/2 square miles of farmland adjacent to the Rocky Mountain Arsenal. The loss of one million in construction cost for a waste injection well which had to be abandoned when the deep-well disposal resulted in earthquakes.

4. Cause of Problem - Infiltration of industrial wastes from unlined holding ponds into a shallow water table aquifer and subsequent migration of the contaminants through the groundwater. Deep-well injection of large volumes of liquid wastes, resulting in earthquakes.

5. Type and Quantity of Hazardous Waste - A complex mixture of chemical by-products from the manufacture of pesticides and herbicides, and from the past manufacture and destruction of some chemical warfare agents. Substances identified in the groundwater include aldrin, dieldrin, endrin, diisopropylmethylphosphonate (DIMP), and dicyclopentadiene (DCPD). Volume of waste infiltration is unknown due to the unavailability of records of amounts of wastes discharged into the various holding ponds.

6. Source of Waste - Chemical manufacturing operations at the Rocky Mountain Arsenal, carried on by the U.S. Army Chemical Corps and the Shell Chemical Company.

7. Date of Incident - Disposal of chemical wastes in unlined ponds took place between 1943 and 1957. The first reported damage to grain crops dates back to 1951.

8. Location - Rocky Mountain Arsenal and surrounding area, between Denver and Brighton, Colorado.

9. Status - Although wastes have not been stored in unlined holding ponds since 1957, groundwater contamination of significant areal extent is still evident.

10. Remedial Action Taken - Construction of an injection well and a 93-acre asphalt-lined reservoir with a holding capacity of 240 million gallons. Extension of the influent pipe to the reservoir and replacement of 800 feet of chemical sewer line.

11. Legal Action Taken - Suits filed by landowners against the Rocky Mountain Arsenal for well water contamination and crop losses have resulted in payment of over $165,000 in damages by the Federal Government. A recent suit brought by Larry Land, a farm owner to the north of the Arsenal, is still pending. He alleges that contaminants originating from the Arsenal have polluted his well water, causing crop and livestock losses.

12. Narrative* - The Rocky Mountain Arsenal was established in 1943 and for several years was operated by the U.S. Army Chemical Corps for the production of chemical warfare agents. In the late 1950's, most of the industrial facilities were leased to the Shell Chemical Company, which has utilized them for the manufacture of pesticides and some herbicides. The Arsenal occupies 27 square miles of the South Platte River Valley between Denver and Brighton, Colorado. From 1943 to 1957, canals and ditches were used to convey liquid chemical wastes from various chemical processes to unlined holding ponds for storage. Since the river valley is underlain by alluvial deposits which act as a shallow water table aquifer, waste liquids infiltrating into the soil moved directly into the groundwater.

First indications that contamination of the groundwater had taken place were in 1951. At that time, damage to crops irrigated with water from shallow wells in an area to the northwest of the Arsenal property became evident.

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*For further details, see References 4 to 9.

During subsequent years, the crop damage extended to several farms in the area. The crops that had become affected included sugar beets, pasture grasses, alfalfa, corn, and barley. Those crops irrigated with contaminated well water exhibited yellow foliage, retarded growth, and consequently low yields. Complaints and damage claims against the Arsenal prompted the U.S. Army Chemical Corps to engage a firm of consulting engineers to investigate the problem in 1954. Subsequent investigations were performed by the U.S. Geological Survey, the Colorado State Department of Health, and the U.S. Public Health Service. By means of a well sampling program, the holding ponds employed at the Arsenal were identified as the source of contamination.

After having defined the problem, technical studies resulted in remedial action in 1957, six years after the initial indications of groundwater damage. A 96-acre asphalt reservoir with a capacity of 240 million gallons was constructed, into which the industrial wastes have been conveyed by pipeline and by tank trucks. In addition, a 12,045-foot deep-injection well was constructed in 1961 for the purpose of waste disposal. However, correlation of the injection of large volumes of liquid into the well with earthquakes in the Denver area caused this operation to cease in 1966.

Wells sampled in a 1965 study conducted by the U.S. Public Health Service (USPHS) in the vicinity of the Arsenal showed severe contamination of the aquifer below an area of at least 12 square miles. Contaminants observed included chloride, sodium, fluoride, arsenic, chlorate, the herbicide 2,4-D, and the insecticides aldrin and dieldrin. Chloride concentrations greater than 200 parts per million (ppm) were used as a contamination indicator. However, concentrations in the contaminated zone ranged as high as 3,000 to 4,000 ppm. The USPHS study also found that the saline water from the shallow contaminated zone in the vicinity of the Arsenal had probably entered an underlying bedrock aquifer through at least three defective wells in the vicinity of a previously used unlined holding pond. Extent of damage to that aquifer was not established.

As of 1975, groundwater contamination in the Rocky Mountain Arsenal area is still evident. A 1974-75 investigation conducted by the Colorado Department of Health detected aldrin (≤30 ppm), endrin (≤40 ppm), dieldrin (≤40 ppm), and DCPD (≤4 ppm) in the groundwater, migrating from the perimeter of the 96-acre asphalt reservoir. The study defined the extent of groundwater contamination (based primarily on the distribution of DIMP) as approximately 30 square miles, of which 25 are outside the Arsenal property. The northernmost well indicating trace contamination from the Arsenal is located approximately one mile south of the public water supply well field of the City of Brighton.

In April 1975, the Colorado Department of Health issued a cease and desist order against the U.S. Army and Shell Chemical Company to stop polluting the surface- and groundwaters of the area. Since that time, the Army has entered into an extensive joint monitoring program with the Department of Health. In an effort to eliminate leakage from the perimeter of the asphalt-lined reservoir, the influent pipe has been extended to its center. Also, water which has surfaced in a slew area located 1.3 miles northeast of the reservoir has been pumped back to prevent its reaching the aquifer. Aerial photography is now being employed as an aid in determining the present extent and potential sources of contamination.

Attachment 4

HAZARDOUS WASTE DISPOSAL
DAMAGE REPORT

May 1976

Petrochemical Contamination of the Cohansey Aquifer in New Jersey

1. Personal Damage-None documented.

2. Environmental Damage-Contamination of an unknown portion of the Cohansey Aquifer, a heavily used groundwater table aquifer in the New Jersey coastal plain.

3. Economic Damage-Permanent loss of use of 148 private supply wells as a result of condemnation. The direct monetary costs associated with the incident are estimated at over $400,000.

4. Cause of Problem-The most likely cause of the problem was the infiltration of contaminants from drummed industrial wastes dumped on a former chicken farm (the Reich property). Many of these drums are known to have leaked before being removed, and at least some of the waste liquid was dumped directly onto the soil.

5. Type and Quantity of Hazardous Waste-At least 4,500 55-gallon drums of liquid chemical wastes, containing a wide variety of petrochemicals with toxic, flammable, explosive, and oxidizing properties.

6. Source of Waste-The Bound Brook plant of the Union Carbide Corporation (UCC). The wastes were hauled to the Reich property by Nicholas Fernicola, an independent hauler.

7. Date of Incident-The drums were dumped between August and December of 1971. In early 1974, contamination of wells in the immediate vicinity became evident.

8. Location-Dover Township (near Toms River), Ocean County, New Jersey.

9. Status-The condemned wells remain closed, and a State-instituted requirement that new wells in an area just outside the condemned zone be drilled to the deeper Kirkwood Aquifer remains in effect.

10. Remedial Action-In April 1972, as a result of a court order, the drums and contaminated soil were removed from the Reich property. When additional drums were discovered in June 1974, these were also excavated, along with the contaminated soil, and hauled away for disposal.

11. Legal Action-On January 31, 1972, a complaint was filed with the Superior Court of New Jersey on behalf of the Reichs against UCC and Nicholas Fernicola. A second complaint was filed by the Township of Dover naming the same defendants. These complaints resulted in a court order that UCC stop dumping or transporting any chemical waste in the Township of Dover and that it remove all chemical wastes and drums from the Reich property. In April 1972, when the area had apparently been cleaned up by UCC, the complaints were dismissed. In an out-of-court settlement with UCC, the Reichs received $10,000 for damages to their property and were reimbursed for the cost of a new well.

    On October 11, 1974, a class action suit was filed by local property owners against UCC. The plaintiffs are demanding $14 million in compensatory and punitive damages on the grounds that UCC was negligent in its disposal of chemical wastes which contaminated the plaintiffs' groundwater. Litigation has not yet been completed.

    The most recent legal action is a suit being brought by the State of New Jersey against UCC demanding that the Company remedy all remaining problems resulting from the incident, cease further violations, and be judged against for compensatory and punitive damages.

12. Narrative*-In March 1971, UCC contracted with Nicholas Fernicola, an independent waste hauler, to remove and dispose of an unspecified number of 55-gallon drums of chemical wastes from its facility at Bound Brook, New Jersey. These wastes were composed of organic wash solvents, still bottoms, and residues from the manufacture of organic chemicals, plastics, and resins. Although some of the drums were taken

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* Documentation for this Damage Report was obtained through an EPA-sponsored study (see Reference 2).

initially to the Dover Township Landfill as intended, the bulk was dumped on a former chicken farm belonging to Mr. and Mrs. Samuel Reich, in the Pleasant Plains section of Dover Township. This land was leased to Nicholas Fernicola by the Reichs in August 1971, on the assumption that he was in the drum salvaging business and empty drums would be stored there to allow accumulation of a sufficient quantity to constitute a full load for delivery to ultimate purchasers. A few months later, the Reichs began to notice unusual odors emanating from the leased area of their property and upon inspection discovered that there were thousands of drums of chemicals both buried and strewn about. In December of the same year, they notified Mr. Fernicola and subsequently UCC, and requested that the drums be removed. Getting little response, they contacted the New Jersey State Department of Environmental Protection, which advised them that storage of chemical wastes on private land was outside the jurisdiction of the State and that they should take the matter up directly with the parties involved. This led the Reichs to initiate court action against Mr. Fernicola and UCC. They were joined in a similar action by the Township of Dover which acted on the grounds that the storage of these chemicals constituted a public nuisance and endangered the lives and property of the Township's residents. On January 31, 1972, the court ordered UCC to remove the drums and clean up the premises. The Reichs received an out-of-court settlement of $10,000 plus compensation for the construction of a new well from UCC for the damages they were claiming. In April, when all the wastes had apparently been removed, the complaints against UCC were dropped. In June 1974, a tip led to the discovery of 51 additional drums in another part of the Reich property and also a trailer containing drummed wastes in a wooded area near Winding River, four miles away. These were also removed by UCC. Some of the drums removed prior to April 1974 were taken to a UCC plant in Ohio for incineration. Other drums were taken to the Rollins-Purle industrial waste disposal facility in Logan Township and the Kin-Buc Landfill* in Edison Township, both located in New Jersey. The additional drums discovered later and the contaminated soil were disposed of at the Kin-Buc Landfill.

The quantity of these wastes actually entering the soil is unknown; however, between 5,000 and 6,000 drums of wastes were hauled away from the site where they had been generated. Since only about 4,500 drums were discovered, those missing are believed to have been deposited in the Dover Township Landfill or poured directly on the Reich property and elsewhere, and the empty drums salvaged. Also, about ten percent of the drums discovered on the Reich property were either partially or completely empty. Presumably, they were full when deposited.

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* Subject of a previous Damage Report (see first document in the series).

Early in 1974, about two years after the first discovery of the chemical wastes on the Reich property, some of the residents in the immediate vicinity began having taste and odor problems with their well water. Sampling and analysis performed by the State indicated the presence of petrochemicals in the ppm range in the wells of those complaining, as well as in other wells in the area. These analytical results, the very strong and persistent taste and odor problems associated with the water from some of the wells, and the documented dumping and burial of the chemical wastes at the Reich property led the State Department of Environmental Protection to conclude that the groundwater in at least the immediate vicinity of the disposal site was contaminated with hazardous organic chemicals. The Dover Township Board of Health then passed an ordinance forbidding the use of well water within the contaminated zone for any purpose, permanently condemning 148 private wells, and ordering that they be capped with cement.

During the six-month interim between condemning of the wells and extension of a public water supply line from the Toms River Water Company to the area, emergency water supply was provided through the use of tanker trucks. Some residents and public facilities used bottled water for drinking and cooking. In the area just outside the contaminated zone surrounding the Reich farm, where construction of new wells was still allowed, the State imposed a greater minimum depth for wells in order to tap the underlying uncontaminated Kirkwood Aquifer. This was enforced through the State's already established well drilling permit program.

There are several other waste disposal sites which may contribute to groundwater contamination in that area of Ocean County. These include the Dover Township Landfill at which chemical wastes have been deposited, the Toms River Chemical Corporation plant in Dover Township, and various locations in which unauthorized industrial waste disposal has allegedly taken place. Although these possible sources of groundwater contamination relate to the Cohansey Formation, they do not appear to bear on the Pleasant Plains problem directly.

Monetary damages directly resulting from the contamination of the Cohansey Aquifer, in which the affected wells are located, amounted to more than $400,000.

The direct damages can be broken down as follows:

Estimated cost of capping the condemned wells	44,400
Removal of drums	25,750
Interim emergency water supply	4,900
Drilling of 20 new wells to deeper aquifer	46,000
Cost of sampling and analysis	38,900
Extension of public water supply	249,100
Construction of observation wells	8,300
	$417,350

Indirect costs, such as the cost to residents in inconvenience and devaluation of property, the time spent by Federal, State and local authorities in dealing with the problem, and possible future spread of the contaminated zone, have not been calculated. While no public health problems appeared to arise from this incident, the possibility of chronic health effects could not be evaluated.

Attachment 5

HAZARDOUS WASTE DISPOSAL
DAMAGE REPORT

January 1976

Dumping into Sand Pit Pollutes Domestic Wells in Texas

1. Personal Damage - Offensive and irritating odors to nearby residents and motorists which according to witnesses caused nausea, sore throats, and headaches.

2. Environmental Damage - Contamination of ground- and surface-waters. Air pollution from occasional fires. Destruction of local vegetation.

3. Economic Damage - Discontinued use of about 26 wells for drinking water purposes for at least 1 1/2 years. Devaluation of property. Unknown amount spent by French Limited of Houston, Inc., on correction of pollution problem. Forced closure of nearby sand pit operation because waste seepage contaminated sand. Fires which occasionally caused closure of a highway.

4. Cause of Problem - Disposal of acidic and oily wastes into an unlined, abandoned sand pit.

5. Type and Quantity of Hazardous Waste - Approximately 70,000,000 gallons of solid, semi-solid, and liquid industrial wastes with a pH as low as 1.5 (highly acidic).

6. Source of Waste - Various oil refineries, petrochemical, chemical, and other industrial plants in the Houston metropolitan area.

7. Date of Incident - Waste disposal at the pit occurred from the mid-1960's to 1971. First complaints date back to 1966.

8. Location - Crosby (near Houston), Texas.

9. Status - The affected wells are again providing drinking water, and the disposal area no longer has odor problems. The Texas Highway Department is utilizing the site for disposal of excess dirt from a freeway project.

10. Remedial Action Taken - Prior to the summer of 1973, the company responsible for the disposal neutralized the acid wastes and skimmed the surficial oils. It pumped air into the waste pond and introduced bacteria cultures which lowered the COD. It also stabilized and rebuilt earthen dikes to prevent overflows.

11. Legal Action Taken - Litigation against French Limited of Houston, Inc., began on January 16, 1968, and was completed on October 31, 1973 (see Narrative).

12. Narrative* - The disposal of industrial wastes in an unlined sand pit in Crosby, Texas, resulted in the contamination of groundwater, surface waters, and the atmosphere. Disposal operations at the site began in the mid-1960's when the pit was owned and operated commercially by B.G. Burton. French Limited of Houston, Inc., a waste disposal company, purchased the pit from Mr. Burton in June 1967. Both Mr. Burton and French Limited accepted all types of industrial wastes from the Houston area. Approximately 70,000,000 gallons were poured into the sand pit.

Leachate from the pit, which was located above a 40-foot-thick sand aquifer, polluted the groundwater causing contamination of about 26 private wells in the area. Well water contaminants included abnormally high concentrations of Mn, Zn, Fe, and Cd, which originated from the dumping of steel mill pickling wastes into the pit. Failure of a dike permitted contamination to reach the San Jacinto River on several occasions.

Residents first complained of the pit operations to State government agencies in the summer of 1966. Seven years later, after numerous court actions, the site was closed. The highlights of these actions are:

°January 16, 1968--Courts temporarily enjoined French Limited from open burning and the disposal of liquid and oily wastes in an open pit. Operations continued.

°May 27, 1970--Violations of court order resulted in $2,000 fine. Operations continued.

°February 2, 1971-- Court judgment for five acts of contempt resulted in $500 fine. Operations continued.

°March 26, 1971--Court order cancelled the waste control permit of French Limited and ordered it to cease all discharges of waste and to remedy all problems existing at the site. Operations continued.

°May 3, 1971--Temporary restraining order issued which prohibited further disposal of wastes. Operations ceased.

°May 3, 1971 - April 16, 1973--Series of eight court orders followed which outlined procedures to be taken in eliminating the pollution problems.

°June 15, 1973--Heavy flood flushed disposal site, removing most wastes into the San Jacinto River.

°October 31, 1973--Final court order issued which required French Limited to pay $5,000 to the County of Harris. In lieu of an additional cash payment, French Limited was to deed its 22-acre disposal site to the State of Texas.

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*The documentation for this Damage Report was obtained from the official records of Harris County and the Texas Water Quality Board.

Attachment 6

HAZARDOUS WASTE DISPOSAL
DAMAGE REPORT

May 1976

Hexachlorobenzene Contamination of Cattle in Louisiana

1. Personal Damage-None documented.
2. Environmental Damage-Contamination of air, soil, and vegetation over an area of about 100 square miles by a toxic substance.
3. Economic Damage-Expenditure of over $380,000, including monitoring and enforcement. This amount does not include losses incurred from delayed marketing of about 30,000 head of cattle.
4. Cause of Problem-Most likely cause was the volatilization of hexachlorobenzene (HCB) from landfilled wastes and subsequent bioaccumulation in cattle grazing in contaminated areas. Other possible sources were industrial processing air emissions and practices involving storage of contaminated products and transport of HCB-containing wastes.
5. Type and Quantity of Hazardous Waste-Wastes containing about 15% HCB were generated at the Vulcan plant in the amount of 5,400 tons/year. Because escape of contaminants in the course of production and disposal occurred continuously over a number of years, the total amount of HCB involved in this episode cannot be estimated.
6. Source of Waste-The Vulcan Materials Corporation plant at Geismar, Louisiana, where the manufacture of perchloroethylene (tetrachloroethylene) and carbon tetrachloride produces HCB as a by-product. Several other plants in the area, which manufactured similar products, probably contributed HCB-contaminated wastes to one or both of the landfills at which HCB levels were found to be high.
7. Date of Incident-Contamination of beef was discovered in a routine sample taken in December 1972.
8. Location-A 100 square mile area around Darrow and Geismar, Louisiana.
9. Status-Vulcan Materials Corp. is now burying its wastes on-site and has reduced emissions of HCB into the air to the ppb range. Monitoring for HCB continues.
10. Remedial Action-The two landfills which previously received HCB wastes no longer do so, although one is still in operation. These sites have been covered with 4 to 6 feet of soil, and a

polyethylene film has been placed approximately two feet below the surface. Vulcan's current practice is to temporarily store HCB wastes underwater in a lagoon and subsequently landfill them on-site, utilizing a cover system similar to the one described above.

11. Legal Action-In the spring of 1973, the State of Louisiana ordered Vulcan to landfill its HCB wastes on-site, using plastic and soil as cover. At about the same time, the State obtained a cease-and-desist order directing Vulcan to reduce its air emissions of HCB to below detectable levels (in the ppb range).

12. Narrative*-In December 1972, a routine sample of beef fat taken as part of the U.S. Department of Agriculture's (USDA) Meat and Poultry Inspection Program, showed 1.52 ppm HCB. Until that time, HCB was rarely encountered, and the level found far exceeded the USDA action guideline of 0.3 ppm then in effect. When it was discovered that the sample came from a steer belonging to W. I. Duplessis of Darrow, Louisiana, inspectors from the program returned to the area and took three additional samples from the Duplessis herd. These also showed high levels (0.99, 1.11, 3.07 ppm) of HCB. Further sampling was conducted in the vicinity, and an area of about 100 square miles was found to contain highly contaminated cattle.

The State of Louisiana was notified, and its officials began an investigation to identify the sources of contamination. Initially, a number of HCB sources were thought possible, because in addition to being a by-product of the manufacture of chlorinated solvents, HCB is also present as a contaminant in certain pesticides and is itself a registered fungicide used for treating seed grain and vegetable seeds. Numerous sources were considered but most of them were ruled out in the course of the investigation. Soil and vegetation samples confirmed the area of contamination and showed concentrations of HCB at high levels near the Vulcan Materials Corporation plant at Geismar, the Ascension Parish Landfill (which was receiving Vulcan's wastes), and another landfill operated by Browning-Ferris Industries. Levels as high as 5,000 ppm were found in the soil at the disposal sites, and it was later learned that HCB-containing wastes were being employed as a cover because they were so effective at keeping birds away. Storage areas for products containing HCB appeared to be minor sources, as did the routes along which Vulcan's wastes were transported. Although a Dow Chemical plant in the area was manufacturing similar products, it had instituted a program of incinerating its wastes, and did not pose the problem identified at Vulcan.

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* Documentation for this Damage Report was obtained from the internal files of the U.S. EPA Office of Toxic Substances and Office of Solid Waste Management Programs.

The specific mechanism of bioaccumulation of HCB in the cattle has not been determined. It is thought that ingestion (via settlement of HCB on the pastures) and inhalation by the animals were both contributing factors.

At the time of the incident, no tolerance level for HCB had been established and although USDA used an action guideline of 0.3 ppm, this did not have legal force. Therefore, USDA petitioned EPA to establish a tolerance for HCB in livestock products, and the State imposed a quarantine on livestock produced in the 100 square mile area identified earlier. The State also obtained a cease-and-desist order requiring Vulcan to stop emitting HCB into the air during its operations, and to bury its HCB-laden wastes on-site, using a plastic and soil cover.

Based on USDA's action level, 42 percent of the quarantined cattle would have been unacceptable for marketing. The USDA, in its petition, asked that the tolerance level "be established as high as possible, consistent with providing consumer safety." After review of the available scientific literature and consultation with the USDA, the Food and Drug Administration, and appropriate Louisiana State Agencies, EPA recommended an interim tolerance level of 0.5 ppm HCB, finding that the data needed to justify a final tolerance did not exist. The USDA adopted the interim tolerance level, and along with EPA, began the studies needed to establish the final tolerance. This change from the action level to the interim tolerance resulted in a reduction of unmarketable animals to 29 percent.

Initial estimates of losses to be incurred by ranchers were as high as $3.9 million, based on the assumption that approximately 30,000 cattle would have to be destroyed. This did not occur because levels of HCB dropped with time as the cattle were removed from contaminated areas and fed an uncontaminated diet. Only 27 animals proved unmarketable by the end of 1974, when the quarantine was lifted by the State.

The total direct cost of this incident was in excess of $380,000, primarily due to monitoring and enforcement costs of $143,000 and the loss of use of grazing land estimated at $200,000. The loss due to unmarketable cattle was reduced to $38,000. Another cost, which has not been estimated, is that resulting from delays in the marketing of about 30,000 head of cattle.

As a result of the incident, a number of HCB-related studies were initiated by EPA and other agencies. One of these has shown disproportionately high plasma HCB levels in people living in the area of Louisiana where the contamination occurred.[3] The highest level encountered in the general population was 23 ppb, and a waste disposal facility worker was found to have a level of 345 ppb. The average level was 3.6 ppb. No toxic symptoms were evident. Two additional recent reports bearing on the subject of this Damage Report are cited among the references.[4,5]

HCB is a pollutant of concern because it is persistent in the environment and is chemically and biologically stable. It is a crystalline solid, but appears in a variety of forms, including vapor, industrial dust, and suspended particulates in water. Under normal environmental conditions it can sublime into the atmosphere. While not acutely toxic in single doses due to poor transfer through the gastro-intestinal tract (the LD$_{50}$ being on the order of 10^5 mg/kg of body weight), continued low-dose exposure to HCB by ingestion or inhalation causes bioaccumulation in animal adipose tissues. This can result in chronic damage to the liver and affect enzymatic function.

An outbreak of HCB toxicity in humans occurred in Turkey during the 1950's. This resulted from the human consumption of HCB-treated feed grain which had been accidentally distributed by the Turkish Government. As many as 5,000 people are believed to have sustained poisoning, 80 percent being children between the ages of 4 and 14. Effects observed included liver deterioration, acute skin sensitivity and blistering, uncontrolled hair growth, and ultimately, tremors, convulsions, and death. Doses were estimated to be 50 to 200 mg/day for a long period of time, with symptoms continuing to appear for several years.

EPA's Assessment of William Sanjour's Criticisms of the Hazardous Waste Managment Regulations Promulgated by EPA on May 19, 1980

July 31, 1980

I. Introduction

In response to a request of the Subcommittee on Oversight and Investigations of the House Interstate and Foreign Commerce Committee, EPA has prepared this assessment of the criticisms that Mr. William Sanjour has levied against the hazardous waste management regulations that were promulgated by EPA on May 19, 1980, under the Resource Conservation and Recovery Act (RCRA). Mr. Sanjour's criticisms were contained in a memorandum from him to John Skinner, dated June 16, 1980. A copy of that memorandum is attached. In that memorandum, Mr. Sanjour reviewed six reported damage cases (out of a total of several hundred) that occurred prior to the enactment of RCRA and in which improper management of hazardous wastes caused damage to human health or the environment. From his review, he reaches the conclusion that the May 19 regulations would not have adequately controlled or prevented these incidents.

Before reviewing each of these cases, however, two general points merit discussion.

A. The May 19 Regulations Are Phase I Regulations

EPA fully recognizes that the May 19 regulations do not represent a complete program to control all aspects of hazardous waste management. The preamble to the May 19 regulations repeatedly explains that they represent the first phase of a multi-phased effort to expand and refine the hazardous waste control program. This phased approach was taken for a number of reasons, principally the complexity of the problem and the need to assure that the promulgated regulations can be defended against legal challenges.

The regulation of literally thousands of hazardous wastes generated by hundreds of thousands of generators and managed in over 25,000 different facilities is an extremely complex undertaking. Virtually none of the regulatory provisions have simple "black-and-white" solutions. EPA received more than 1,200 comments from the public on its proposed hazardous waste regulations, representing widely divergent points of view or points of fact on almost every issue. EPA has had to thoroughly review these comments, respond in writing to the major issues raised by the commenters, and document the basis and purpose of the final regulations to assure that the final rules (1) could be adequately defended, (2) would be fair and workable, and (3) would be understandable to the regulated community, the States and the public. This has been a difficult, frustrating and time-consuming task, and one that has required considerable care and deliberation. EPA chose to promulgate those regulatory provisions on which it had completed its work--that is Phase I--on May 19 in order to permit immediate implementation of major parts of the hazardous waste program while the remaining parts of the program were being completed. Therefore, the May 19 regulations are not complete and fair judgment of the Federal hazardous waste program cannot be made on the basis of these regulations.

B. The May 19 Regulations Provide Significant Control of Hazardous Waste

Although the May 19 regulations are only the first phase of a comprehensive hazardous waste management program, they provide significant control over hazardous wastes. They bring under regulatory control more than 41 million metric tons of hazardous wastes generated annually--no small accomplishment. They require these hazardous wastes to be designated as such and further require that records and reports on these wastes be maintained. These requirements are probably the most powerful elements of the regulations. The designation and reporting of these wastes as hazardous wastes causes all persons involved in the management of these wastes to recognize that they are handling hazardous wastes and to realize the responsibilities and liabilities that are attached to their management of these wastes. This is a significant change from the past where these persons were not required to recognize the hazardousness of their wastes and therefore were not compelled to exercise adequate standards of care.

The regulations require labeling and proper storage and packaging of hazardous wastes. They require proper transportation and manifesting of wastes. They impose recordkeeping and reporting requirements so that the nation can know for the first time where 41 million metric tons per year of wastes are generated, who is transporting them, where they are going, how they are ultimately treated, stored or disposed and what are their quantities and characteristics. As a result, the requirements provide an extremely powerful tool. They enable EPA and the States to discover and react to problems, to proceed with enforcement actions where needed, to inform the public and to otherwise know and understand the scope and dimensions of the hazardous waste problem so that it can be effectively dealt with. The importance of the data provided by the recordkeeping and reporting requirements can be seen when it is recognized that the lack of such data is the greatest impediment in dealing with the so-called abandoned site problem inherited from decades of nonregulated management of hazardous wastes.

Finally, the regulations require waste analysis, groundwater monitoring, inspection, security, contingency plans, training, proper closure, post-closure monitoring and maintenance and other improved management practices at storage, treatment and disposal facilities. In summary, the May 19 regulations "get the ball rolling" in terms of bringing significant quantities of hazardous wastes into a national hazardous waste management system.

II. Specific Responses

A. Dioxin Poisoning

1. Allegation: Mr. Sanjour alleges that the May 19 regulations would not have controlled the spraying of dioxin-contaminated waste oil on a Missouri horse arena for the purpose of dust suppression. He contends that the regulations do not list the implicated waste and, further, do not prohibit or control the spraying of hazardous wastes as a dust suppressant.

2. Summary Response: Although the May 19 regulations do not yet cover the specific waste oil mixture involved in the case cited by Mr. Sanjour (that is, waste oil that has been mixed with dioxin-contaminated residues from the production of trichlorophenol), they do cover many other, more frequently occurring mixtures of waste oil contaminated with other toxic wastes, including several dioxin-contaminated wastes. Further, EPA indicated in the preamble to Part 261 that it intends to list waste oil (see 45 FR 33118) and issue regulations to cover the actual use and recycling of waste oil, including its use as a dust suppressant (see 45 FR 33094) in the fall of 1980.

3. Detailed Response: The case cited by Mr. Sanjour involved waste oil in which the waste residue from the production of trichlorophenol had been mixed with the waste oil. The trichlorophenol waste residual contained dioxin (probably 2, 3, 7, 8 - tetrachlorodibenzo-p-dioxin) as a contaminant.

One of the principal reasons that waste oil presents a hazardous waste problem is that various toxic wastes are occasionally discarded by being mixed into waste oil. This was the situation involved in the subject case. One approach to dealing with this problem is to list those hazardous wastes which might be mixed with waste oil and cause it to be a hazardous waste pursuant to the mixing rule in §261.3(a)(2)(ii) of the May 19 regulations (see 45 FR 33119). The other approach is to list all waste oil as hazardous waste on the presumption that it might be mixed with and thereby contaminated by other hazardous wastes. EPA is following both approaches.

With respect to the first approach, EPA has listed a large number of process wastes (see §§261.31 and 261.32 at 45 FR 33123-33124) and commercial products (see §261.33(e) and (f) at 45 FR 33124 through 33127) which can be and occasionally are mixed with waste oil. Although EPA has not been able to complete the collection of data necessary to list waste residuals from the production of trichorophenol, it has listed, or has scheduled for listing, many other equally toxic wastes, several of which contain dioxin isomers. These toxic wastes include a large number of very widely used spent solvents (see listings F001 through F006 at 45 FR 33123), pentachlorophenol wastes (see listing K001 at 45 FR 33123), 2, 4-D wastes (see listing K043 at 45 FR 33123) and 2, 4, 5-T (see listing U-232 at 45 FR 33127). Consequently, the May 19 regulations cover contaminated waste oils similar to the waste oil cited by Mr. Sanjour, but contaminated by toxic wastes other than trichlorophenol waste residuals. Mr. Sanjour fails to note this and erroneously leaves the impression that no contaminated waste oils are regulated by the May 19 regulations.

EPA is developing data to list waste residuals from trichlorophenol production. It should be recognized, however, that these residuals currently are not the problem they once were. Trichlorophenol is produced by only one plant today, as against the several plants that produced this chemical when the subject case occurred. In short, the concerns and potential of waste oil being contaminated with other wastes such as the several spent solvents listed in §261.31 (see listings F001 through F006 at 45 FR 33123) are much greater than they are with respect to trichlorophenol production wastes.

EPA has also underway a permanent program to characterize the many thousands of industrial wastes for which it currently has no data. The purpose of this program is to list additional hazardous wastes. One of the first priorities of this effort is to characterize wastes from the organic chemical industry and within this priority to characterize those wastes, not now listed, that might contain dioxin. The program received its first funding of $4 million in FY 1980 under a supplemental request submitted by EPA and just recently appropriated by the Congress. A funding level of $11 million is included in EPA's FY 1981 budget request, and similar annual levels of funding are contemplated for subsequent years.

Regarding the second approach--that of listing waste oil, itself, as a hazardous waste--EPA included such a listing in its December 1978 proposed regulation. Several hundred public comments were received objecting to that listing; only a few comments supported the listing. Although there are several complex issues related to the regulation of waste oil, the one that most pertains to this discussion is the appropriateness of listing waste oil as a hazardous waste because it occasionally has been mixed with dioxin-contaminated wastes or other toxic wastes. Most commenters objected to implicating *all* waste oil as hazardous because *some* waste oil is occasionally contaminated by being *mixed* with toxic wastes. Commenters suggested that only those waste oils that are contaminated mixtures be listed (essentially the first approach discussed above). EPA is thoroughly assessing these comments and the manifold issues associated with the regulation of waste oil. EPA simply was not able to complete its assessment in time to include final waste oil provisions in the May 19 regulations. However, the Agency has indicated that it intends to complete this work and list waste oil in the fall of 1980 (see 45 FR 33087, 33094 and 33118). In the interim, as discussed above, EPA has established regulatory coverage over waste oil (as well as other solid wastes) which are mixed with any of the hazardous wastes listed in the May 19 regulations.

Turning to Mr. Sanjour's second contention, he is correct that the regulations do not prohibit or control the spraying of hazardous wastes as a dust suppressant. Such activity would be a legitimate re-use and, as such is temporarily excluded from regulation in §261.6. The issue of whether Subtitle C of RCRA authorizes EPA to regulate hazardous wastes that are used, re-used, recycled or reclaimed has been and is a very controversial one.

A great many commenters on the December 1978 proposed regulations argued that the statute only authorizes regulation of wastes that are discarded and does not authorize regulation of wastes that are used or recycled. Many of these commenters contended that use of waste oil as a dust suppressant, as well as the use of waste oil for other purposes (burning as a fuel and reprocessing for subsequent use), is outside of the statutory jurisdiction. EPA does not agree with these commenters and, in the May 19 regulations, has established jurisdiction over hazardous wastes that are used or recycled. A full discussion of this matter is given in the preamble to Part 261 (see 45 FR 33090 through 33095).

Given that it has jurisdiction, EPA has regulated the storage and transportation of listed hazardous wastes, mixtures thereof, and hazardous waste sludges that are destined for use or recycling (see §261.6(b) at 45 FR 33120 and 33121). It believes that hazardous wastes pose the same hazards to human health or the environment during transportation and storage regardless of whether they are destined to be discarded or used or recycled. With respect to the actual use or recycling of hazardous wastes, however, EPA believes that, in many cases, tailored management requirements are needed because the hazards associated with use or recycling often are different from those involved in the disposal or treatment of these wastes when they are discarded, and because the dual objects of the statute to protect human health and the environment and to conserve and recover resources can be better achieved (but without compromising health and environmental protection) by tailored requirements (see discussion of these points at 45 FR 33092). EPA simply was not able to complete the work necessary to develop tailored requirements for the use and recycling of hazardous waste for incorporation in the May 19 regulations. Therefore, the Agency had to defer regulation of the actual use, re-use, recycling and reclamation of hazardous wastes in §261.6(a). The Agency, however, has clearly indicated its intent to provide such regulation in future amendments and to begin this process in the fall of 1980 (see preamble discussion at 45 FR 33094).

In accordance with the foregoing, the May 19 regulations cover the storage and transportation of waste oils that have been mixed with any of the hazardous wastes listed in the regulations, regardless of whether these waste oils are destined for disposal or use (including use as a dust suppressant) or recycling. As such, these waste oils would have to be designated as a hazardous waste, labeled as such, packaged and stored in accordance with requirements and transported under a manifest. Even though the May 19 regulations do not regulate the actual use or recycling of waste oils, the requirements on storage and transportation would certainly serve to forewarn potential users of the fact that they are dealing with a hazardous waste and hopefully serve to discourage improper use. Also, the preamble to Part 261 of the May 19 regulations clearly indicates that EPA intends, in the fall of 1980, to promulgate regulations covering the actual use and recycling of waste oil, including the use of waste oil for road oiling, dust suppression and other land applications (see 45 FR 33094). A person is currently working full time on this task. Mr. Sanjour failed to mention these points and erroneously left the impression that EPA is not regulating waste oil in any way and has indefinitely avoided the regulation of the use of waste oil as a dust suppressant.

B. Arsenic Poisoning

1. Allegation: Mr. Sanjour alleges that the May 19 regulations would not have prevented the contamination of under ground drinking water at Perham, Minnesota, caused by the burial of a grasshopper bait, because the implicated grasshopper bait containing arsenic trioxide is not listed as a hazardous waste, because the regulations do not regulate quantities of this hazardous waste that are less than 1,000 kilograms and because the regulations require groundwater monitoring for only 30 years after closure of the site. (He notes that groundwater contamination was not detected until 40 years after disposal in this case).

2. Summary Response: The May 19 regulations list, as hazardous waste if discarded, arsenic trioxide and formulations thereof that are generically known as arsenic trioxide. EPA believes that the cited grasshopper bait was generically known as arsenic trioxide and thereby would have been covered by the regulations if discarded. The regulations would have required the bait to be disposed of in a permitted or interim status hazardous waste disposal facility if it was discarded in quantities greater than 1 kilogram (2.2 pounds) per month. Furthermore, the regulations would have required groundwater monitoring at the disposal facility during operation and after closure of the facility. This groundwater monitoring could have been required for more than 30 years after closure if the situation warranted; the regulations do not limit post-closure groundwater monitoring to 30 years.

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3. Detailed Response: With respect to Mr. Sanjour's first contention, arsenic trioxide is listed as a commercial product which is a hazardous waste if discarded (see listing P012 under §261.33(e) at 45 FR 33124). During the 1930's, arsenic trioxide was a commonly used pesticide. It was typically purchased in almost pure form and used in various formulations which were typically known as arsenic trioxide. Pursuant to §261.33, any commercial product having the generic name of arsenic trioxide is a hazardous waste if discarded. Because the various formulations of arsenic trioxide were known by the generic name of arsenic trioxide in the 1930's, the listing of arsenic trioxide in §261.33 would have covered the subject situation; that is, the discarding and burial of the cited grasshopper bait would have been subjected to the May 19 regulations.

In contrast to Sanjour's second contention, the May 19 regulations cover the discarding of arsenic trioxide in amounts greater than 1 kilogram per month--not 1,000 kilograms per month as he contends. The report on the case indicates that the State of Minnesota estimated that less than 50 pounds of the grasshopper bait was buried. EPA believes it is fair to assume that the burial occurred in incremental quantities greater than 1 kilogram (2.2 pounds) per month. Consequently, EPA believes that the discarded grasshopper bait would have been covered by the May 19 regulations: the generator, transporter and disposer would have had to notify EPA under Section 3010 of RCRA, the burial site would have had to be a permitted or an interim status hazardous waste disposal facility, groundwater monitoring would have had to be initiated and other requirements would have had to be followed. Importantly, the regulating agency (EPA or the State) would have had full knowledge about the existence, characteristics and disposal of these wastes and would have received reports and data from the required groundwater monitoring. This would be far different from the almost 40 years of ignorance about this situation and the rude, unfortunate and belated discovery that actually occurred.

On his last contention, Mr. Sanjour contends that post-closure monitoring can only be required for 30 years. This is not correct. Section 265.117(d) requires post-closure care and monitoring for "at least" 30 years and enables the Regional Administrator to require a longer period. Given the toxicity, non-degradability and high soluability of arsenic, and given the shallow depth to groundwater in the subject case, it would have been possible to require post-closure groundwater monitoring for a period longer than 30 years.

It is also possible that the groundwater contamination in this case would have been detected well before 40 years or even 30 years under the monitoring that would have been required by the May 19 regulations. Mr. Sanjour concludes that groundwater contamination did not occur until 40 years after burial of the wastes. A careful review of the facts reported in this case indicate, however, that contamination was not detected for 40 years because no one was monitoring the groundwater before that time.

In summary, Mr. Sanjour is wholly incorrect in contending that the May 19 regulations would not control the subject pollution incident.

C. Army Chemical Warfare Wastes

1. Allegation: Mr. Sanjour contends that the May 19 regulations would not have controlled the contamination of shallow groundwater underlying the Rocky Mountain Arsenal as a result of the storage of chemical warfare wastes in unlined holding ponds. He first implies that the regulations may not cover the implicated wastes but recognizes that it is difficult to determine if this is so because the wastes are not definitively identified in the report on this case. On the presumption that the wastes are covered in whole or in part by the regulations, he goes on to contend that groundwater monitoring requirements of Part 265, Subpart F, do not require remedial action (to restore the groundwater) when and if groundwater contamination is detected by monitoring. In particular, he finds fault with the fact that neither closure of the facility or provision of alternative supplies of groundwater is required as a remedial action. Finally, he contends that the contingency plan requirements of Part 265, Subpart D, do not cover releases of hazardous wastes into groundwater.

2. Summary Response: Mr. Sanjour is largely incorrect in his allegation. While it is unclear as to whether the subject chemical warfare wastes are covered by the regulations (because the involved wastes are not identified), it is clear that EPA has listed a number of hazardous wastes that might have been involved in this case. Secondly, although the May 19 regulations do not yet require the remedy of groundwater contamination, they do require groundwater monitoring to detect such contamination and the conduct of a groundwater quality assessment

if contamination is detected. Both actions are essential prerequisites to any remedial action. Further, the regulations enable the closure of and removal of hazardous wastes and contaminated soils from a surface impoundment that is contaminating groundwater, and Section 7003 of RCRA enables EPA to seek injunctive action to remedy groundwater contamination. In short, EPA can act to remedy problems like the one cited. Finally, although Mr. Sanjour is technically correct that the contingency plan requirements do not require contingency action when groundwater contamination is detected, the groundwater monitoring requirements in Part 265, Subpart F, do require contingency action in such cases. Thus, Mr. Sanjour's criticisms misrepresent the coverage of the May 19 regulations.

3. Detailed Response: EPA is unable to comment with specificity on the implied criticisms that the regulations might not cover all of the wastes implicated in this case because the involved wastes are not identified. It should be pointed out, however, that the regulations do list 13 process wastes generated in the production of pesticides that might be used as or in chemical warfare agents and 22 process wastes generated in the production of organic chemicals which might be used in the production of such agents (see §261.32 at 45 FR 33123 and 33124). Additional process wastes of the latter type, particularly the several broad classes of wastes generated in the production of chlorinated hydrocarbons, are scheduled for listing in the fall of 1980 (see Appendices A and B of the preamble to Part 261 at 45 FR 33117 through 33119).

Mr. Sanjour is correct that the groundwater monitoring requirements in Part 265, Subpart F, do not require remedial action when and if groundwater contamination is detected. The reason for this is that EPA simply has not been able to define nationally applicable groundwater standards that would be necessary to specify the type and extent of remedy required for the many and widely varying contamination problems that might be encountered. Whereas the Agency believes it can specify the requirements for remedial action on a case-by-case basis after considering the types of contaminants involved, the quality and use of the particular groundwater aquifer and other site-specific factors, it believes it does not yet have sufficient data to develop and include such specification in a national regulation.

The absence of remedial requirements in Part 265, Subpart F, does not mean, however, that EPA is without authority to act to remedy groundwater contamination. The groundwater monitoring requirements of Subpart F clearly require the owner or operator of a land disposal facility to operate a groundwater monitoring system and further require, when suspected contamination is detected, that the owner or operator of the facility initiate a detailed groundwater quality assessment program to define the scope and character of the suspected contamination (see Part 265, Subpart F, at 45 FR 33239 through 33242). Such an assessment would be a prerequisite step in defining any remedial action. The results of such an assessment must be reported immediately to EPA. Armed with these results, EPA can, if it has not already, accelerate action on the permit application to cause the closing of the facility through denial of the permit or the upgrading of the facility through issuance of a permit with specific conditions and time schedules for upgrading requirements. In the case of denial of a permit, the owner or operator would have to close the facility and, in so doing, comply with either the closure requirements for surface impoundments (see §265.228 at 45 FR 33246), which would require either the removal of all liquid hazardous wastes, all hazardous waste residuals and all underlying and surrounding contaminated soils or the closure requirements for landfills, which would require solidification of the liquid hazardous wastes, provision of an adequate cover and provision of at least 30 years of post-closure monitoring and maintenance. In the case where a permit is issued, the permit would undoubtedly require similar actions plus provision of a suitably lined holding pond for continued handling of future wastes. In addition, EPA can act to commence an injunctive action under Section 7003 of RCRA to compel the owner or operator to cease operation, to remedy the contamination and/or to provide such other relief as deemed necessary, including the provision of alternative water supplies. Such action would be substantially aided by the groundwater contamination assessment results produced by the owner or operator as a direct requirement of the May 19 regulations.

It is clear from the foregoing that, even in the absence of specific requirements in Part 265, Subpart F, for remedying groundwater contamination, EPA has ample authority to seek remedy. Mr. Sanjour fails to recognize this in his contention and thereby seriously errs in his criticism through omission.

Relative to Mr. Sanjour's final contention that the contingency plan requirements fail to cover contingency actions necessary to remedy groundwater contamination, he fails to have read or recognize the clear explanation for this given in the preamble to Part 265 (see 45 FR 33185). Put very simply, that explanation states that because contingency action relative to groundwater contamination is covered by the groundwater monitoring requirements in Part 265, Subpart F, and by actions that flow therefrom, as discussed above, EPA felt it would be duplicative and confusing to cover the same requirements in the contingency plan section. Again, this is another example of Mr. Sanjour's criticisms being based on an inadequate reading or his misrepresentation of the May 19 regulations.

D. Destruction of Water Supply

1. Allegation: Mr. Sanjour contends that the May 19 regulations do not provide for closure and post-closure trust funds or performance bonds and thereby do not assure the availability of money to cover the costs of remedying groundwater contamination.

2. Summary Response: Mr. Sanjour is correct in observing that the May 19 regulations do not require closure and post-closure trust funds or equivalent instruments for assuring financial responsibility. He fails to note, however, that, concurrent with the May 19 regulations, EPA proposed revised requirements for such funds or equivalent instruments (see 45 FR 33260 through 33278) and that EPA is clearly committed to promulgation of such requirements, as soon as the public comments received on the proposed rules can be assessed and the complex issues involved in this matter can be resolved.

3. Detailed Response: In December 1978, EPA proposed the requirement that trust funds be established to assure money is available for closure and post-closure costs. The Agency received a large number of public comments on this requirement strongly recommending other ways of guaranteeing money for such costs, including surety bonds, letters of credit and self-bonding based on an asset test. EPA thoroughly assessed these comments and made the preliminary determination that (1) instruments

other than trust funds might be sufficient and, if so, should be allowed, (2) changes (also brought to attention by commenters) were necessary in the proposed requirement for trust funds and (3) further public comment (particularly from the banking and bonding community) was needed to resolve the many extremely complex issues involved in developing final closure and post-closure financial responsibility requirements. For these reasons, the financial responsibility requirements for closure and post-closure were reproposed on May 19, 1980. In doing this, the Agency recognized that a six to nine month deferral of interim status financial responsibility requirements will result. It strongly believes, however, that this deferral is necessary to the promulgation of effective, workable requirements.

Aside from this, it is clear that Mr. Sanjour has not carefully read the regulations with respect to closure and post-closure funds, because these funds are not intended or designed to cover the costs of remedying groundwater contamination. They are designed to cover closure costs (e.g., landfill cover and removal of hazardous wastes from and decontamination of treatment and storage facilities) and post-closure monitoring and maintenance costs (e.g., maintenance of landfill covers and maintenance and operation of groundwater monitoring systems). Nor are the site-life liability insurance requirements proposed for interim status and permitted facilities designed to accommodate such remedial costs (they are designed to cover liability claims for personal injury and property damage).

The issue of whether and to what extent the remedying of groundwater contamination should be dealt with in the hazardous waste regulations has been a difficult issue to resolve. Clearly, there is no known way to estimate these costs and thereby apply trust funds and similar devices to cover these costs. The same problems have discouraged the insurance industry from providing insurance for these remedial costs. As a result, EPA has concluded that a national insurance-type pool, funded by hazardous waste management facilities, is the best means--and, perhaps, the only means--of dealing with such costs. The Agency is working with the Congress with respect to including such coverage in legislation currently being considered by the Congress.

E. Chemical Industrial Waste Dumping

1. Allegation: Mr. Sanjour contends that the May 19 regulations would not have prevented the dumping of hazardous wastes into a sand pit in Crosby, Texas (this situation resulted in the contamination of underground drinking water, odors and spills to surface waters). Specifically, Mr. Sanjour contends that the requirements of Part 265, Subpart K (which covers surface impoundments) do not contain special provisions for liquid wastes, soil types or porosity, impoundment liners or other special requirements for containerization of liquids. He further contends that disposal into an unlined sand pit is not prohibited. Finally, he notes that groundwater monitoring is not required until a year after the effective date of the regulations and that remedying of groundwater contamination is not required.

2. Summary Response: Mr. Sanjour is correct that the interim status requirements for surface impoundments in Part 265, Subpart K, do not prohibit disposal into unlined sand pits or require liners. There is a very good reason for this. EPA believes that major requirements for treatment, storage and disposal facilities must, pursuant to the statute, be determined and established in the permit process where particular site-specific and waste-specific factors can be carefully considered and where public participation and full due process can be afforded in determining permit requirements. As such, the requirements that Mr. Sanjour finds missing in Part 265 are intended to be placed in Part 264 which governs permit requirements. These requirements will be included in the Phase II regulation scheduled to be promulgated in the fall of 1980. These Phase II regulations will cover disposal of hazardous wastes in unlined sand pits and requirements for liners in surface impoundments.

Mr. Sanjour is also correct in his observation that groundwater monitoring is not required until a year after the effective date of the May 19 regulations. Since most existing facilities do not have groundwater monitoring systems in place, EPA felt compelled to allow sufficient time to adequately design and install such systems which require proper placement of monitoring wells based on professionally performed hydrogeological studies. To allow less time would only result in poorly designed and installed monitoring systems.

Mr. Sanjour's criticism regarding remedying groundwater contamination is discussed in Item C above.

3. Detailed Response: Mr. Sanjour is correct that the interim status requirements for surface impoundments in Part 265, Subpart K, do not prohibit disposal of hazardous wastes into unlined sand pits or require surface impoundments to have liners. EPA believes that these requirements must be dealt with as part of the permit issuance process where the size and design of liners and the need for prohibitive requirements can be determined based on the particular characteristics of the site and the wastes it receives and where public participation and full due process in the issuance or denial of a permit can be afforded. Accordingly, requirements for disposal of hazardous wastes in unlined sand pits were not intended to be covered in Part 265, Subpart K. Instead, they are intended to be covered in Part 264, in the Phase II regulations that the Agency has indicated will be promulgated in the fall of 1980.

The absence of these requirements in Part 265, Subpart K, does not mean that EPA is without authority to move aggressively to prevent and remedy situations such as the one Mr. Sanjour references. First, the owner or operator of this facility would have to notify EPA of its existence, apply for a permit, initiate groundwater monitoring and report on the quantities and types of wastes he receives and on the monitoring results he has obtained. Therefore, in the subject case, EPA would have detailed knowledge about a very poor operation. Based on this, EPA could initiate and expedite the permitting process to achieve either closure of the facility through permit denial or upgrading of the facility (e.g., provision of liners and prohibitions or restrictions of the disposal of certain wastes) through permit issuance. In addition, if the situation warrants, EPA could initiate action under Section 7003 of RCRA to obtain appropriate injunctive relief.

Mr. Sanjour observes that groundwater monitoring is not required until a year after the effective date of the regulation. This is true. EPA found that most existing facilities do not presently have groundwater monitoring systems and will have to design and install such systems. The Agency concluded that conduct of the hydrogeological studies necessary to properly design monitoring systems and the installation of such systems capable of detecting groundwater contamination will typically require more than six months and as much as 18 months, if done properly. To allow less time would only result in poorly designed and installed systems. Consequently, EPA allowed an added year (18 months after promulgation of the May 19 regulations) to comply with the groundwater monitoring requirements. The Agency believes it acted wisely and responsibly in this matter.

Mr. Sanjour's last criticism regarding the lack of requirements for remedying groundwater contamination is addressed in the previous discussion.

In summary, Mr. Sanjour has read the May 19 regulations far too narrowly and fails to recognize (1) that the May 19 (Phase I) regulations place many important requirements on sites like the one he references, (2) that Phase II regulations are scheduled for promulgation in the fall of 1980 and are intended to deal with the problems he cites and (3) that EPA can use Section 7003 of RCRA to deal with imminent hazardous situations such as the one he describes.

F. Volatile Waste

1. Allegation: Mr. Sanjour contends that the May 19 regulations do not control volatilizing hazardous wastes and would therefore not have prevented the property damage caused by disposal of hexachlorobenzene wastes in Louisiana.

2. Summary Response: Mr. Sanjour is partially correct: the May 19 regulations do not control all aspects of hazardous waste volatilization, because EPA has not yet been able to develop a scientifically sufficient way of defining wastes that pose volatilization hazards. But the regulations control some important volatilization problems that result from ignitable, reactive and incompatable wastes. Mr. Sanjour is correct that the regulations do not now control the specific volatilization situation that he references. EPA recognizes this deficiency and is working to correct it.

3. Detailed Response: EPA has not yet been able to specify a technically and scientifically defendable way of designating which hazardous wastes are sufficiently volatile to cause hazard to human health or the environ-

ment and thereby require special management. Almost all hazardous wastes volatilize or sublimate to some degree. The problem is to identify those that volatilize or sublimate to a degree that may pose substantial hazard. The factors that govern the volatilization or sublimation are many and are interrelated in a complex way. EPA simply has not been able to develop a scientifically sufficient and legally defendable protocol, based on these complex factors, to identify high volatilizing or sublimating wastes. EPA has worked on this problem and intends to continue to work on this problem until a solution is found. This entire issue is fully explained in the preamble to Part 265 (see 45 FR 33166). Mr. Sanjour fails to recognize this explanation or point out that EPA is very much aware of this deficiency and has worked, and is working, to rectify it.

The May 19 regulations do regulate some important aspects of the volatilization of hazardous wastes. Ignitable and reactive wastes which typically are highly volatile wastes, are prohibited from being placed in tanks, surface impoundments, waste piles, land treatment facilities and landfills without following certain precautions which usually will be achieved by keeping such wastes covered, thereby preventing or minimizing volatilization. In addition, the mixing or comingling of incompatible wastes that could generate toxic mists, fumes, dusts or gases is prohibited. Finally, containers holding hazardous wastes must be kept closed during storage to prevent volatilization.

III. Conclusion

As indicated in the beginning of this document, EPA fully recognizes that the May 19 regulations are not complete. They do not identify all of the hazardous wastes that ultimately must be listed nor do they provide all of the management requirements that ultimately must be promulgated. Because of this, EPA has committed itself to expanding these regulations and is diligently working to ready the Phase II regulations for promulgation in the fall of 1980.

For the most part, Mr. Sanjour has elected to dwell on several parts of the May 19 regulations which are not complete, and which EPA is quite aware, and has clearly stated, are not complete, and has scheduled for near future completion. His criticisms, therefore, have not been revealing nor have they been helpful because he has neglected to propose any solutions in his memorandum. What is most disappointing, however, is the fact that he, as Chief of EPA's Hazardous Waste Implementation Branch responsible for supporting the implementation of the regulations, seems to be preoccupied with those aspects of the control program which have been explicitly identified as not yet complete rather than with those aspects which have been completed and can be made to work to achieve their intended purpose of bringing hazardous wastes under effective control.

Mr. GORE. What impact will the RCRA regulations have on the amount and the kind of hazardous wastes exported from the United States to foreign countries for disposal?

Mr. PLEHN. What our regulations contain is an extension of the notification process to foreign shipment. They require that EPA be advised annually of any generator's intent to ship wastes overseas and they require that any wastes shipments be undertaken through the manifest system.

Mr. GORE. You can anticipate, can you not, that tighter regulation of waste disposal in this country combined with increasing problems in locating available disposal sites may serve to increase the amount of hazardous wastes exported for disposal in foreign countries?

Mr. PLEHN. That is correct.

Mr. GORE. How much waste is currently exported and to which countries?

Mr. PLEHN. I don't believe we have any decent data on that question.

Mr. GORE. No information. You are aware of problems which have arisen cited by the State Department with respect to this matter, are you not?

Mr. PLEHN. Yes, sir.

Mr. GORE. Earlier this year, the Nedlog technology group of Arvada, Colo., created a furor when it engaged in negotiations with the Government of Sierra Leone to exchange $25 million for the right to build a new disposal facility and then the plan was abandoned after groups within that country as well as in neighboring African nations protested the arrangement and the State Department then expressed its concern over the wisdom of the scheme.

While no solid information exists on the amount of exports, there have, however, been rumors—which is the best, unfortunately, we had to work with in this area, both in the press and in Government agencies—of plans to dispose of wastes in such places as Mexico, Haiti, and West Africa. There was in this week's Newsweek magazine a report of high level consultations between Mexican and American officials over the disposal of PCB's by an American firm in Mexico; is that right?

Mr. PLEHN. I saw the article. I don't know if it is correct.

Mr. GORE. What regulations presently govern the export of hazardous wastes?

Mr. PLEHN. I am really not going to be a good witness for you on that point, Mr. Chairman.

The State Department has taken leadership on this issue involving EPA and a number of other Federal agencies. It is my understanding that they are looking at the utilization of export control authorities under the Department of Commerce as the regulatory tool for dealing with this problem by going beyond the notification and manifesting requirement in our legislation. But I am not a direct participant in that.

We could have the State Department contact you informally or by letter supplementing this record if that would be useful to you.

Mr. GORE. My understanding is that there are no regulations covering it other than the notification requirement which tells them to notify the administrator in writing 4 weeks before the initial shipment of hazardous wastes to each country in each calendar year. At that point the EPA is expected to contact the State Department and the State Department then contacts the foreign governments. Is that the way it is supposed to work?

Mr. **Plehn**. That is right.

Mr. **Gore**. But there are no other controls in the regulations concerning this matter, only the notification?

Mr. **Plehn**. That is correct.

Mr. **Gore**. Well, I hope that doesn't create——

Mr. **Plehn**. We believe that is as far as the authority of RCRA reaches.

I might add as a philosophical matter that, just as we believe there should be no arbitrary prohibitions on the movement of wastes between States within our Union, we think there are likely to be circumstances in which wastes can go to foreign countries for effective management. But that is of course premised on the assumption that the facilities to which they are going are good ones and, as I said, I believe State Department has the leadership with the other agencies in determining what other authorities should be used in order to make sure that is the result and not that environmental problems are being created overseas.

Mr. **Gore**. Fine. I hope you will pay attention to that problem because it is one that is likely to—it could get worse if the regulations lead some generators and disposers to make contracts with some foreign governments that may cause problems for us in the future.

Now, how will these regulations insure that no groundwater contamination occurs at interim status facilities?

Mr. **Plehn**. Well, first, these regulations contain a series of operational requirements for the management of wastes in storage and treatment; they require that containers not leak, they require that surface facilities be inspected on a regular basis. Those are two that occur to me right off the top.

They require that runoff and run-on to landfills be controlled. They require that liquids cease being disposed in landfills effective in a year, at least that is a proposed requirement. Finally, they require the installation of a groundwater monitoring system to detect any leakage that may occur from the facility.

Mr. **Gore**. Are the phase I and phase II standards in fact going to be in place by November 19?

Mr. **Plehn**. The phase I standards are in place. They were promulgated on May 19. They will take effect on November 19, I believe. We are committed and are making every effort to promulgate phase II standards in the fall as we promised Judge Gesell.

Mr. **Gore**. In the fall. Are you going to make the November 19 deadline?

Mr. **Plehn**. To my knowledge, we don't have a November 19 deadline.

Mr. **Gore**. Where did that figure come from?

Mr. **Plehn**. That is the effective date of the regulations that we promulgated on May 19. The law says that these regulations take effect 6 months after they are promulgated. So from that point

rd the manifest system is in place and the interim status
ards must be complied with.

Gore. When will the phase II standards be in effect?

Plehn. Under the law they would take effect 6 months after
are promulgated by EPA.

. Gore. When will they be promulgated?

. Plehn. We have committed to Judge Gesell we will promul-
those standards in the fall.

. Gore. OK. You don't have a target date in the agency, just
the first leaves begin to fall?

. Plehn. Or after the last leaf falls. It depends on where you

. Gore. I have some leaves from last year still hanging on.

. Plehn. Not at EPA, they all fall off.

. Gore. I do not know.

your January 1979 environmental impact statement which
npanied the proposed RCRA regulations, you said that 65
ent of all potentially hazardous waste would be unregulated by
A.

w is that figure changed with the final regulations?

r. Plehn. Well, first of all, our data on the amount of hazard-
vaste which is generated in this country and our data on what
program will include is still, obviously, uncertain. It is based
ndustry surveys and it is based on some State inventories that
been taken. So that it will only be through the notification
ess and the receipt of annual reports that we are going to be
y getting a harder number about that.

t our best estimates, based on the data we have and our
ssment of what these regulations will cover, is that we have
nded on the order of 40 million tons a year. Our earlier esti-
e on the amount of potentially hazardous waste generated in
country was 57 million tons.

r. Gore. So what would the percentage be, from 65 to what?
say you have problems.

r. Plehn. We believe these regulations will cover about 40
ion tons a year.

r. Gore. I see.

ow, in the GAO's December 19, 1978, report to the Congress
tled "How to Dispose of Hazardous Waste: A Serious Question
t Needs To Be Resolved," GAO cited a three-pronged EPA
rt to address the siting problem. These were, one, development
State solid and hazardous wastes planning guidelines; two,
lic education program; and three, public opposition study.

hat is the status of these efforts?

Ir. Plehn. We have significantly strengthened our effort to
vide support and guidance to the States and private enterprise
lealing with the siting problem. I mentioned that we felt leader-
p by the State was critical here, the lead role. In order to help
port that, we have established a cooperative arrangement with
National Governors Association to provide exchanges of infor-
tion, analysis, and support between the States in order to facili-
e them in dealing with that problem.

Ve have also launched a program of technical assistance that
a number of components. One part is an effort to develop a

series of handbooks and other supporting materials to assist private enterprise and the States. Just to cover the topics, we are going to deal with compensation, to advise people on circumstances in which compensation to communities that are the host to hazardous waste sites might be appropriate.

We are going to have another handbook on consultation with the public. We did a case study, case studies of some 22 hazardous waste sitings, both successful and unsuccessful. One of the things that came out of that is that if an industry proposing a site misinforms the proposed community at the beginning, it is almost a hopeless ball game to catch up and get back to the real facts.

We are going to produce more information on the area of mediation. We think there is a role, taking what has been learned in labor mediation and environmental mediation and bringing that into the siting problem to improve the dialog between the host community and the proposed facility. We are going to try to put together a handbook on risk identification, so people understand what the real risks are in any particular setting, and also some work on siting criteria, so citizens have an understanding of what are appropriate and not appropriate sitings for different facilities.

We also have the grant to the New England Regional Commission I mentioned. We are trying to do more of that. We are trying to help in that innovative regional approach in dealing with that problem cooperatively.

We see ourselves, particularly from regional offices, but also from headquarters, providing technical assistance on problems connected with siting. In addition to that, we have now an active program going to keep updating our analyses about the capacity problem, determining where shortages of facilities exist, and looking continuously at the question of State and Federal roles, how this whole effort might evolve in the future.

Finally, we believe that there is a need for some kind of a policy about the utilization of Federal lands for hazardous waste facilities. We hope to work with the Council on Environmental Quality and the landholding agencies, Department of Defense, Forest Service, Bureau of Land Management, to begin to develop a policy that is appropriate for considering the use of Federal lands for facilities.

Mr. **Gore**. Now State planning guidelines were promulgated in July of 1979.

Under those guidelines, States have 18 months within which to reach compliance. However, EPA has now reduced subtitle D Solid Waste Act moneys and intends to phase out subtitle D over the next 5 years. Many States are saying that these cuts in subtitle D will not allow them to fulfill the mandates in subtitle D or subtitle C.

How do you respond to that?

Mr. **Plehn**. Well, that phaseout of funding for subtitle D is pursuant to a policy which was decided upon 1½ to 2 years ago. Basically, I think this comes down to this—a judgment reached that the Federal Government cannot do everything. It therefore was felt that in this area of other than hazardous waste management that we would embark on a 5-year phasedown policy which, on the one hand, would provide sufficient funds over a sufficient period of time to discharge the primary Federal responsibilities that are involved in RCRA.

Second, it would give the States some time to develop a user charge system to support this kind of work.

We have within available resources, which have not been extensive, been trying to assist the States in reaching that. Obviously this is not a popular decision with the States. Some of the arguments they have obviously have merit. But this was a case in which it was judged that the Federal Government could not support everything.

Mr. **Gore**. I have heard a little bit about that policy, too, during the budget debate.

Mr. **Plehn**. Yes; I am sure you have.

Mr. **Gore**. Now in 1970, Congress under section 212 of the Solid Waste Disposal Act directed EPA to assess the hazardous waste problem and submit a plan to respond to the need for future hazardous waste disposal sites. Your response was a report in which you concluded that a regulatory approach would be the most effective solution. In addition, the report stated a private waste management service exists and is capable of expanding under the stimulus of a regulatory program.

Are you now satisfied that the private sector will be stimulated by RCRA to adequately expand the Nation's hazardous waste capacity?

Mr. **Plehn**. Well, I think it is too early to give you a solid answer to that question. I think that we still believe very strongly that the market creation, if you will, that is represented by these regulations and companion regulations at the State level are essential preconditions for the entry of private enterprise. That market is now there. Not only those firms that have currently been involved in hazardous waste management, but many other firms that are in other, but technically related, fields are taking a very serious look at coming into this field. That is very good.

I think there is still a bunch of unanswered questions that could make this thing go the other way. One of them is the siting issue.

Mr. **Gore**. Yes.

Mr. **Plehn**. Another is just the whole area of risk and liability that is associated with hazardous waste. I was visited by a company which has strong technical credentials that said:

> We recognize there is a profit to be made here, we recognize that we could provide the service, but we are very nervous that our name could be besmirched by some kind of an incident and we are not sure it is worth the risk.

I think that is still a big question that we don't know the answer to. If industry says this is too scary, we are not coming in, then the answer to your question is "No." But right now we don't know, we have to watch it carefully, provide support and encouragement.

Mr. **Gore**. There is some indication that the initial hopes that the private sector would move in with a large additional capacity may not be realized, is that a fair summation?

Mr. **Plehn**. I think it is too early to reach that judgment.

Mr. **Dietrich**. I think that the point also should be made that 80 percent of the wastes are handled on site by the company that generated them, so you are not only looking at the private people doing off-site operations but industry, if they don't find a place, are going to have to provide adequate treatment.

Mr. GORE. Well, I think the onsite figure really refers to sites owned by the generator, correct?

Mr. DIETRICH. That is right.

Mr. GORE. So it may not be colocated.

Now, according to your earlier testimony, the siting issue is the most difficult obstacle in your judgment. You still agree with that, correct? You were cochairman of the Siting Committee?

Mr. PLEHN. Yes, sir, I do. I mean, it is the key problem because it is essential if we are to apply better technologies to waste management.

Mr. GORE. You have not yet developed a policy though on siting, have you?

Mr. PLEHN. We have developed a document which articulates EPA's present views of the siting problem which is in final stages of review within the agency.

Mr. GORE. Mr. MacMillan, is EPA actively searching right now for hazardous waste disposal sites?

TESTIMONY OF DOUGLAS MacMILLAN

Mr. MACMILLAN. Yes, the agency is. There are a variety of mechanisms used to support the site identification process. You cited the surface impoundment assessment earlier this morning. As an example, we have taken the surface impoundment assessment data locating particularly vulnerable geologic areas, forwarded that material to our regional offices, and asked them to take a look at specific surface impoundments in those areas.

We are looking for sites through the process of reviewing existing governmental files, through contracts with State and local governments and through on site inspections. We have hot lines established in certain regions where citizens are encouraged to call and give us information about potential sites.

We are asking EPA and State investigators to look for sites as part of their investigations linked to other environmental monitoring. In the last few weeks EPA has been involved—in conjunction with the State of Illinois, the metropolitan sanitary district, the city of Chicago—in a grid pattern search of certain areas of South Chicago to try to determine where sites may be located in that highly industrialized area.

We intend to extend that approach to other areas of the Midwest.

In some areas U.S. Department of Agriculture county agents who are familiar with local situations have been asked to help us identify sites. In one State the Governor has written a letter to all State employees and asked for their assistance in locating potential hazardous waste sites.

There are a variety of efforts underway. While none of these efforts—standing alone—provides that full answer, we think they are adding up to a substantial search effort.

Mr. GORE. How many sites have you so far identified in this effort?

Mr. MACMILLAN. As of May 31, we had some 5,790 potential hazardous waste sites listed on regional investigation lists. That does not mean that all of those sites are, in fact, hazardous, nor does it mean that there has necessarily been any illegal activity at the site. What it does mean is that the sites have been placed on regional lists as places requiring investigation.

Once a site is identified, we then conduct what we call a preliminary assessment, which is basically an in-house look at all existing data that may pertain to a particular location. We look at State files, EPA files, geohydrological maps, and the evidence that was provided when the location was initially identified as a potential hazardous waste site.

We have done 3,522 preliminary assessments based on these available records. We then use that process to set priorities for conducting actual onsite inspections. As of May 31, we have conducted approximately 1,000 onsite inspections.

Mr. GORE. 1,001?

Mr. MACMILLAN. 1,001; that is correct.

Out of that total, we currently have some 150 enforcement investigations underway. There have been 19 section 311 emergency cleanup and containment responses under the Clean Water Act, with expenses projected somewhere in excess of $6 million. We have filed 27 Federal cases in the hazardous waste area and anticipate filing a total of 50 cases by the end of the calendar year.

Mr. GORE. How many people in the regional offices are currently working on the inventory effort?

Mr. MACMILLAN. Our latest estimate is that approximately 170 are people involved in the site inventory and assessment effort. Now that wasn't just——

Mr. GORE. Is that currently involved or expected to be involved?

Mr. MACMILLAN. That is currently involved. This figure is not limited just to the EPA personnel in the process of identifying sites. This also includes the technical personnel in the laboratories, analyzing samples taken at site, and the other technical and legal people reviewing site data.

I would point out a major change in the way that EPA is approaching the site identification and assessment problem. EPA has recently executed a $13 million contract to put 180 contract investigators in the field—under the control of the EPA regional offices—to augment EPA's efforts in the areas of site identification and site assessment. Right now approximately 100 of those people are already on board. The others will be on board within the next few months. This will represent a quantum jump in the number of people we have involved in site identification and site assessment.

Mr. GORE. Have you asked identifiable large generators to report their waste disposal practices and identify disposal sites used?

Mr. MACMILLAN. Yes, we have. We have used section 308 under the Clean Water Act where we have reason to believe that a point source discharge may be involved—and we have used other kinds of inventorying techniques as well.

Mr. GORE. Now, a second recommendation of the subcommittee, in addition to that, was for the EPA to conduct an appropriate investigation of haulers identifed in our survey who transported waste to locations unknown to the generators to determine where such wastes were taken and the manner in which they were disposed of. Have you followed this recommendation?

Mr. MACMILLAN. All of the hauler data which we obtained from the subcommittee was sent to our regional offices and to the States.

I think it would be only fair to say, though, that we have not yet had the resources to fully and systematically address hauler data. We believe that when the 180 contract investigators discussed a moment ago are fully on board we will be in a position to look at hauler data and more efficiently track where wastes are going.

Also, obviously, the onset of the manifest system under the RCRA regulations will be a very substantial aid in tracking haulers and their activities.

Mr. GORE. What difficulties have you encountered in attempting to determine who is liable when you find a site that does pose a serious hazard to human health and the environment? What difficulties have you encountered in attempting to determine who is liable for it and in preparing legal action against those parties? The thrust of my question is whether or not you have found that the law is biased either toward the disposers or contains loopholes that you would like to see closed.

Mr. MACMILLAN. Well, the burden of proof that the Government carries an imminent hazard action is not always an easy one. But we feel that so far we have generally had relatively good success in prosecuting our Federal hazardous waste site enforcement.

One of the major problems that we face, of course, is simply the complex task of determining what is on a site, and linking that to the environmental contamination. That often involves very complicated geohydrological studies, where groundwater pollution is involved. The developments of the technical data is quite difficult in that type of case.

Mr. GORE. Mr. Eckhardt wanted me to ask this question. He is unable to be with us this morning because of a legislative matter on the floor, but he is concerned, among other things, about section 261.33.

He talks about the problem of improper disposal of empty chemical drums that have been used to contain hazardous wastes, and I would like to ask unanimous consent to put in the record at this point a letter which Chairman Eckhardt sent last February to Mr. C. Coleman Harris with respect to this question.

This section in paragraph C states in effect that any container that has been used to hold any commercial or chemical product having the generic name listed in paragraph E is a hazardous waste if and when it is discarded or intended to be discarded, unless it has been triple-rinsed or cleaned in accordance with certain standards.

Mr. DIETRICH. Yes, it is.

Mr. GORE. Paragraph E lists a number of commercial chemical product which are identified as acute hazardous wastes and which fall within the purview of paragraph C relating to the containers.

I do not find methylene chloride, the chemical involved in the death of this man in Houston, on this list. Is it fair to assume that the reason for this is that methylene chloride in its natural state is not considered to be an acute hazardous substance?

Mr. DIETRICH. I am going to have to supply that answer to you. I do not see methylene chlorine on here either. Presumably if it is an acutely hazardous material, it would meet the criteria we used to construct that list.

Mr. **Gore**. Let me tell you where the problem is. It is listed as a hazardous waste from nonspecific source, under 261.31, and it is described under your hazard code as a toxic waste but it is not listed in paragraph E relating to containers. Therefore, the tragedy that happened to this Houston man who opened this drum which had contained methalene chlorine and was killed by it; it would not be precluded from happening again under the regulations now contained in paragraphs C and E.

Mr. **Dietrich**. This point was raised the other day in talking with committee staff. We are going to go back and look at this. We believe that we have to list additional containers that would be covered by these regulations and certainly the example you brought up is one that we will look at.

Mr. **Gore**. Let me ask you if you would answer some additional questions on that matter for the record?

Mr. MacMillan and the agency represented, executed a $1 million national contract to allocate 180 contract investigators to your regional offices. You say 170 are now working. To whom was this contract let and what length of time does it cover?

Mr. **MacMillan**. Just for clarification, there are currently 170 EPA regional personnel working on this issue. The 180 contractor investigators will be added to that total.

Mr. **Gore**. I see.

Mr. **MacMillan**. The contract, was awarded to Ecology and Environment, Inc., a firm out of Buffalo, N.Y. It runs for 19.5 months with two 1-year extensions that can be added to that initial period.

Mr. **Gore**. What are the qualifications required of these contract investigators? Are they environmental engineers or what?

Mr. **MacMillan**. There are a variety of specialties involved. The contract itself was quite specific about the kinds of expertise that the contractor was expected to supply.

Additionally, there was some flexibility left in the hands of each region to focus the last increment of contractor personnel in the areas where they felt that their particular region had the greatest need.

Mr. **Gore**. Now you mentioned the 1,001 sites that have had onsite inspections. How many of these were conducted by EPA and how many by State officials?

Mr. **MacMillan**. According to our computer data, about 85 percent of these site inspections were conducted by EPA. We believe that State officials have conducted substantially more site inspections than the number reflected in our computer—but that not all of these activities have been documented by our system.

Mr. **Gore**. Of the 50 Federal enforcement actions EPA anticipates filing before the end of calendar year 1980, how many will apply to onsite facilities and how many to offsite facilities?

Mr. **MacMillan**. That is a projection that I am probably unable to make. I can talk about the 27 cases filed to date. Of that total, 11 were onsite facilities. The remainder were commercial disposal sites, solvent recovery operations, and similar operations.

Mr. **Gore**. Can you supply additional information in response to that for the record?

Mr. **MacMillan**. Yes.

[The following documents were received for the record:]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF ENFORCEMENT

HAZARDOUS WASTE ENFORCEMENT TASK FORCE CASE STATISTICS

AS OF JULY 2, 1980

TOTAL CASES FILED	27	
ACTIVE SITES (At time of case filing)	8	
INACTIVE SITES (At time of case filing)	19	
ON-SITE CONTAMINATION	11	
OFF-SITE CONTAMINATION	16	
SUBSUPACEWATER CONTAMINATION	14 yes 3 potential 2 unknown 1 suspected	7 no
DRINKING WATER CONTAMINATION	5 yes 2 potential 1 unknown 1 contributory	18 no
SOIL CONTAMINATION	25 yes 1 probable	1 no
FIRE/EXPLOSION HAZARD	12 yes	15 no

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF ENFORCEMENT

Hazardous Waste Enforcement Task Force Case Statistics

as of October 9, 1980

51 Cases Filed

Active Sites - 21 (at filing)

Inactive Sites - 30 (at filing)

On-Site Contamination - 18 (wastes disposed of where generated)

Off-Site Contamination - 32 (wastes not disposed of where generated)

Both - 1

Groundwater (Subsurfacewater) Contamination

YES - 28   NO - 12   POTENTIAL - 10   UNKNOWN - 1

Surfacewater Contamination

YES - 29   NO - 20   POTENTIAL - 2   UNKNOWN - 0

Drinking Water Contamination

YES - 12   NO - 31   POTENTIAL - 8   UNKNOWN - 0

Soil Contamination

YES - 47   NO - 3   POTENTIAL - 1   UNKNOWN - 0

Fire/Explosion Hazard

YES - 18   NO - 33   POTENTIAL - 0   UNKNOWN - 0

Mr. GORE. In general, what kind of cooperation has EPA received from State agencies with respect to both your traffic system and in the area of enforcement?

Mr. MACMILLAN. As you would expect, the level of joint activity is highly variable. Generally, we have had reasonably good cooperation. Twenty-seven States are currently using EPA site tracking forms to conduct their own investigations, and four more States have indicated an interest in using our management system.

Twenty-nine States are already providing data to our system using those forms. In all States there is an effort by the EPA regional staff to stay in close touch with the State staff through telephone calls and periodic conferences, about the status of specific sites. Additionally, a number of EPA regions and individual States have developed agreements to divide up the total workload in a way that prevents duplication of effort.

Mr. GORE. It has been a long day, and I want to close the hearing by expressing my appreciation for your patience and stamina. It is a difficult area in which to work, but I assure you this subcommittee is going to continue its intense interest in this subject. I am disappointed and troubled by the inadequacies in the regulations, many of which have been covered, about some of which there is disagreement, and I hope that your commitments that have been expressed here will be met and the phase II regulations will bring substantial improvement and correction of some of the deficiencies in the phase I.

Mr. PLEHN. I would like to mention some of the frustrations or limitations that are potentially frustrating to us. The President's budget for fiscal year 1980 and 1981 requests long overdue and desperately needed increases in contract support resources to assist us in developing this program. The House Appropriations Committee cut out $9 million in the fiscal year 1980 supplemental—$9 of the $12 million the President requested. Fortunately that has been restored by the Senate Appropriations Committee, but it will be really vital to our success that those funds are included in that supplemental action.

Similarly, it is my understanding that the science authorizing committee has cut $5 million out of ORD funds for work in the incineration area for 1981.

Mr. GORE. I fought that cut.

Mr. PLEHN. I want to thank you for that.

Mr. GORE. Do you have a quote from the Washington Post to support your effort to expand the contracting out?

Mr. PLEHN. We will see if we can find one.

Mr. GORE. You cited it earlier.

Mr. PLEHN. The other frustration that we have is—and there is obviously a reason for this—the general freeze on hiring. We had hoped to add 200 people to our regional staff during the course of fiscal year 1980 in order to be in the position in 1981 to begin to implement this program. We are also getting in a real bind in headquarters. As we lose people, we cannot fill behind them. Those are things which do impact on our ability to deliver on commitments we have made.

Mr. GORE. Let me say in response to that I want the record to reflect that the disappointment and frustration evident in the tone and wording of many of my questions today is not directed at the individuals present or at the individuals with whom I have had the pleasure of working at EPA. I know there are institutional constraints in many problems in this area, and I have a great deal of respect for you gentlemen and for others at EPA with whom I have worked. I look forward to continuing that cooperative effort.

With that, the subcommittee will stand adjourned.

[Whereupon, at 1:35 p.m., the subcommittee was adjourned.]

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